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# REPORT

ON THE

# SYSTEM OF AGRICULTURE AND AGRICULTURAL STATISTICS

OF THE

# DACCA DISTRICT

BY

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# AGRICULTURAL REPORT OF THE DACCA DISTRICT.

FROM A. C. SEN, ESQ.,

*Assistant to Director of Agriculture,*

TO THE DIRECTOR OF THE DEPARTMENT OF LAND RECORDS AND AGRICULTURE, BENGAL.

*Dated Calcutta, the 15th July* 1889.

SIR,

I HAVE the honour to submit my report of the Dacca District.

## CHAPTER I.—GENERAL AND PHYSICAL GEOGRAPHY.

1. *Position.*—The district of Dacca is situated in the eastern part of Bengal, and lies between 24° 20′ 12″ and 23° 6′ 30″ north latitude and 89° 47′ 50″ and 91° 1′ 10″ east longitude. It is one of the four districts included in the Dacca Division which constitutes the extent of the jurisdiction of the divisional Commissioner. The principal civil station of the district is Dacca, which is the head-quarters of the Collector-Magistrate of the district, as well as of the Commissioner of the division.

2. *Boundaries.*—On the east, south and west, and for about one-half on the north, the district is bounded by rivers: those on the east, south and west being large streams from two to four miles in breadth and forming natural boundaries separating the district of Dacca from the surrounding districts. On the east it is separated from Tipperah, in the jurisdiction of the Commissioner of the Chittagong Division, by the river Meghna; on the south the Ganges, here called the Padma, and lower down the Kirtinasa, lies between the Dacca district and the districts of Faridpur and Backergunge. On the west it is separated from the Pubna district by the river Jabuna, known to Englishmen as the Jenai, and which forms the western and main channel of the Brahmaputra. On the north it is bounded by the district of Mymensingh. On this side, for about half the length, the boundary is well marked by the rivers Brahmaputra (the eastern channel), the Banar and the Banchera. Above the village of Jangirpur the latter river flows through the Mymensingh district, and between that village and the village of Sulpo on the Jabuna the boundary line between the Dacca and the Mymensingh districts is an artificial and arbitrary one. All these surrounding districts, with the exception of Pubna, were formerly included within the jurisdiction of the Collector of Dacca, but now form independent collectorates.

Map 1.

3. *Area and population.*—The area comprised within these boundaries is 2,797 square miles, with a population according to the census of 1882 of 2,116,000 souls.

4. *Administrative divisions of the district.*—The district is divided into four subdivisions, five munsifis and 14 police stations, as follow:—

| Subdivisions. | Thanas. | Munsifis. |
|---|---|---|
| Dacca Sudder ... | Kotwali ... | ... Dacca. |
| | Lalbag ... | ... |
| | Sabhar ... | ... |
| | Keranigunge ... | ... |
| | Nawabgunge ... | ... |
| | Kapasia ... | ... Kaligunge. |
| | Roypura ... | ... |
| | Rupgunge ... | ... |
| Moonshigunge ... | Srinagar ... | ... Moonshigunge. |
| | Moonshigunge | ... |
| Manikgunge ... | Jaffergunge ... | ... Manikgunge. |
| | Manikgunge ... | ... |
| | Harirampore ... | ... |
| Naraingunge ... | Naraingunge ... | ... Naraingunge. |

5. *The River system.*—The district is not only for the most part bounded by rivers, but intersected by a complete network of rivers and creeks. The rivers that pass through the district and do not simply form its boundaries are, with few exceptions, the branches, either primary, secondary, or of a still lower denomination, of the river Brahmaputra.

I.—The Jabuna (the western and main channel of the Brahmaputra) gives rise to

1. The Bhumjani (the new upper channel of the Dhaleswari) gives rise to—
   1. The Alum, a new river, falling into the Chowhat jheel.

2. The Dhaleswari (the old upper channel) gives rise to—

The Dhaleswari gives rise to—

1. The Gh[illegible]khali falling into the Dhaleswari
2. The Soonga[illegible]ver ditto ditto
3. The Booriganga river ditto ditto
4. The Singda ditto ditto
5. The Bairugadi ditto ditto
   gives rise to the Taltala creek falling into the Tar[illegible] creek.
6. The Mirkadim creek falling into the Sherazabad river.

1. Gheorkhal falling into the Ichhamati.
2. The Tara river falling into the Kaliganga.
3. The Ichhamati falling into the Dhaleswari.
   gives rise to—
   1. The Mahadevpur khal falling into the Kaliganga.
   2. The Toolsi creek falling into the Dhaleswari.
   3. The Goalkhali falling into the Dhaleswari.
   4. The Koocheamora creek falling into the Dhaleswari.
   5. The Srinagar creek falling into the Taratia creek.

6. The Kaliganga, the remnant of an old river, is now fed by a number of small streams from the Ichhamati and the Dhaleswari, and falls into the Dhaleswari.

II.—The Brahmaputra (the eastern and old channel) gives rise to—

1. The Bansi falling into the Dhaleswari
   gives rise to—
   1. The Toorag falling into the Booriganga
      gives rise to—
      The Tangi falling into the Lakhya
      gives rise to—
      1. The Baloo falling into the Lakhya
         gives rise to—
         1. The Dulai creek falling into the Booriganga.
2. The Banar, called lower down the Lakhya, falling into the Dhaleswari.
3. The Aralia creek falling into the Lakhya.
4. The Kaithadi river falling into the Brahmaputra.
5. The Arialkhan river, locally known as the Pahari river, falling into the Meghna.

III.—The Padma gives rise to—

1. The Mainat creek falling into the Ichhamati.
2. The Hilsamari ditto ditto.
3. The Taratia creek.
4. The Bahar creek.

IV.—The Meghna gives rise to—

Many large and innumerable smaller streams, most of which have no proper names given to them—
1. The Sherazabad river falling into the Meghna.
2. The Kachikata falling into Kirtinasa.

V.—Rivers which take rise in the Madhupur jungle—
1. The Saidaha falling into the Toorag.
2. The Lavandaha falling into the Toorag
3. The Goalsear creek falling into the Toorag.

6. *The Brahmaputra.*—The eastern and old channel of the Brahmaputra touches the district at a place called Toke, and forms its north-eastern boundary from that place down to Bhairab bazaar at the trijunction of the Mymensingh, Dacca and Tipperah districts. Near the hât at Kaithadi it sends off a branch to the right, which, after a course of about 12 miles, joins the main stream a little above Belabo. Near the latter place the river again divides into two branches: the right hand branch, under the name of the Arialkhan river, takes a southerly direction and joins a branch of the Meghna near Narsingdee, and the left and main branch joins the Meghna near Bhairab bazaar, as stated before.

7. *The Banar and Lakhya.*—The Banar branches out of the Brahmaputra near Toke, and at first taking a westerly direction forms the boundary between Mymensingh and Dacca for about 6 miles, and then flowing south-east joins the Lakhya near Lakhpur. This latter river, which was formerly an independent branch of the Brahmaputra, is owing to the silting up of the ancient channel of the Brahmaputra between Aralia and Lakhpur, now entirely fed by the Banar, and forms simply a continuation of that river. About 5 miles below Lakhpur the river takes a south-westerly direction, and after running a course, of 40 miles joins the Dhaleswari below Naraingunge. The eastern and old channel of the Brahmaputra has silted up and is navigable only during the rains, and the little water that comes through it passes through the Banar instead of through the channel that joins the Meghna at Bhairab bazaar. The Banar and Lakhya should therefore be now regarded as the main stream of the eastern channel of the Brahmaputra. The Lakhya or Sital Lakhya, as it is generally called on account of the transparency of its water, is, as regards its scenery, one of the finest rivers in the country. It is navigable throughout the year, and has some very important trading marts on its banks, *e.g.*, Barmi, Kapasia, Lakhpur, Jamalpur, Kaligunge, Rupgunge, Murapura, Demra, Shidhigunge, Hazeegunge, Naraingunge, and Madangunge.

8. *The Meghna.*—The Meghna is formed by the union of numerous streams that take rise in the Garo, Cachar, and the Sylhet hills, and pass through the lowlands and jheels lying between the Mymensingh and Sylhet districts. The bed of the Meghna is only very slightly raised above the sea-level, so that for such a large river it has an exceedingly sluggish current, and instead of confining itself in one channel has a complete network of streams and creeks of various sizes covering a breadth of from 1 to 15 miles. The water of the Meghna is exceedingly dirty and hardly potable, being full of half-decayed organic matter washed down from the Sylhet jheels, and as a consequence there is probably no river in the world which so much abounds in fishes as this river, especially in its upper courses.

9. *The Marshes.*—The marshes or the beels, as they are locally called in the Dacca district, may be divided under two heads—*first*, those within the area of the Madhupur jungle; *second*, those outside this area. All the marshes under the second head had their origin in the changes that the courses of rivers had undergone and in the silting up of river channels. Most of these marshes lie in a line running from north to south, and are supposed to be the traces of the ancient bed of the Ganges. The marshes within the Madhupur jungle area, though certainly of aqueous origin, are scattered in such a way and bounded on all sides by such high lands, that it is difficult to conceive them as representing ancient beds of rivers. The most important marshes in the district are—

1*st.*—Pubal, Saldaha, Lavandaha.
2*nd.*—Airal jheel.
The low lands of Jamsha.
The low lands of Dhamroy.
Nara jheel.
Raghunathpur jheel.
Chowhat jheel.

10. *The physical aspect and geology.*—As regards the nature of the soil, the altitude with reference to the inundation level, the density of population and the extent and the mode of cultivation, the district naturally divides itself into two portions—*A*, that part of the district which is comprised within the area of the Madhupur jungle, including the two fiscal divisions of Bhawal and Kasimpur and a large portion of the north and north-east of thana Roypura; *B*, the

rest of the district. These two tracts of the country not only differ in their physical aspects, but, as will be shown afterwards, have probably a different geological origin.

11. *A.—The Madhupur jungle.*—This tract is overrun with dense jungle, contains in its north-western parts forests of gigantic trees and is infested with wild beasts. It extends for nearly 80 miles due north from the city of Dacca, which is built on its southern extremity. Its greatest width in the centre from Patharghata in the Tangail subdivision of Mymensingh to Belabo on the Brahmaputra is about 45 miles. On its western face it has a well-defined boundary, and rises in hillocks to a height of about 100 feet from the level of the alluvial plain along its whole length: in the centre its average height is from 40 to 60 feet, and it gradually slopes away eastward, extending as far as the Arialkhan river, one of the branches of the Brahmaputra. The river Bansi may roughly be regarded as its western boundary, and it is only here and there that the Madhupur jungle crosses this river, and extends from one to four miles more to the west. On the north and east it is bounded by the old channel of the Brahmaputra and the Arialkhan river mentioned above, and the river Booriganga forms its southern boundary. At the time when the Brahmaputra had not yet shifted its channel to the west of the district and joined the Padma near Goalundo, and when the Booriganga had not yet been made into a branch of the Dhaleswari by the latter river appropriating to itself the portion of the Bansi between Sabhar and Phoolbaria, the Madhupur jungle was bounded by two branches of the Brahmaputra; the eastern and oldest channel of it forming the northern and eastern boundary, and the river Bansi separating it from the alluvial plains to the west and south. But though in its outward appearance, position, as well as form, it very much resembles a delta, it will be pointed out afterwards that the Madhupur jungle cannot be regarded as a delta of the Brahmaputra in the ordinary sense of the term.

Map 01.

12. *The soil of the Madhupur jungle.*—The upper layer of the Madhupur jungle is a stiff red clay, exceedingly rich in iron, but deficient in sand. Underlying this is a layer of red sand, very much resembling the sand so common in the beds of the More, Adjai, the Burrakar and other rivers in Western Bengal, having their origin in the Bindhya ranges or its outspurs, but somewhat finer in texture. The sand is met with at different depths below the red clay, varying according to localities, and its dip seems to be towards south-west. The red clay, as well as the underlying sand, seems to be singularly free from fossils. Remains of animals are certainly met with, from those of small molluscus to that of the elephant, but these are found in places as leave no doubt that they are of much later origin, and give us no clue to the history of the formation of the Madhupur jungle.

13. *The position of the Madhupur jungle*—Is very peculiar: it has two lines of depression, to the right and left. That to the east extends northward to the foot of the Garo hills, and eastward to the Tipperah-Chittagong hill range. The Limai range and the Maynamati hill situated within this area occupy a position as peculiar as that of the Madhupur range itself, and probably have also a similar origin. The northern portion of this depression is occupied by the Sylhet jheels, and almost the whole area of it is comprised within the beds of the Meghna and its numerous tributaries and branches. Dr. Hooker, while travelling through this part of the country, found by taking barometric levellings that the Sylhet jheels are very slightly raised above the Bay of Bengal, and that their bottom consisted of accumulation of decaying vegetable matter—incipient peat—through which he could not reach the firm bottom by thrusting the boatpole. A similar depressed area lay to the west of the Madhupur jungle up to so recently as the time [1789] when Major Rennell made his survey extending from the Nattore jheels to the sea. By the change of the course of the Brahmaputra that took place some time at the beginning of this century, the portion of it within the Dacca district has undergone considerable changes and been much raised, but well-marked traces of this depressed area are still in existence in the Airal jheel, the low plains of Jamsha, Dhamroy and Jaypura, and the jheel of Chowhat. To say, however, that the Madhupur jungle is bounded on all sides by depressed areas, as has been done by all the previous writers who have described this singular spot of country, does not at all

Maps 02 and 03.

represent the true state of the case. The Madhupur jungle is neither a continuous chain of hills, nor a continuous surface of elevated land. It consists of chains of elevated lands of different sizes, in some cases mere mounds of earth covering less than an acre, separated from one another by depressed areas forming so many jheels, the bottom of some of which is certainly not at a higher level than that of the jheel outside the jungle. This fact of there being depressed areas not only all around the jungle, but within it, is of great importance in connection with the question of the origin of this singular tract of land within the delta of Bengal.

14. *The origin of the Madhupur jungle.*—Mr. Fergusson, in his very interesting account of the recent changes in the Gangetic delta, takes the Madhupur jungle to be an area of elevation, and the upheaval in his opinion took place within the Christian era Mr. Blanford, while reviewing Fergusson's theory of the origin of the Madhupur jungle, stated that there are three possible explanations—(1) the Madhupur jungle may have been raised; (2) parts of the surrounding country may have been depressed ; or (3) that the alluvion of the Madhupur area may have been deposited by some other river than the Brahmaputra. He then very summarily dismissed the last hypothesis on the ground that the Gangetic streams could not have crossed the low area to the westward, and that it is impossible that the Sylhet streams, the Surma, &c., which are said to contain comparatively little silt, could have raised this plain to so considerable a height. The only satisfactory explanation, Mr. Blanford continued, "involves partial and unequal change of level, either of depression or of elevation."

15. From a mere general consideration of the Madhupur jungle, and from its position within the area that has within the memory of men now living been subjected to seismatic changes of a more or less violent nature, a partial elevation and depression seems to be the most probable explanation of its origin. Instances of similar elevation and depression, even in very recent times, are also not unknown. So recently as in 1819, a single series of earthquake shocks caused an elevation of a portion of an alluvial area, and the depression of an adjoining tract in the western part of Cutch. If, however, the details of the case be considered, the elevation and the depression theory becomes exceedingly difficult to maintain. As stated above, the Madhupur jungle is not a continuous tract of elevated land, but consists of in some places mere mounds of earth separated by depressed areas. Again, underlying the superficial area of red clay there is a layer of coarse red sand, which from evidences obtained from well-sinking, &c., appears not to have been disturbed. It is difficult to conceive seismatic action so limited, both in the horizontal and vertical directions, as a detailed consideration of the Madhupur jungle would lead us to believe. From a more careful consideration of the details of the case, it appears to me that, when originally deposited as an alluvion, the whole area of the Madhupur jungle had been more or less a continuous elevated tract of land having its slope to the south-east, and that the elevations and depressions within it were afterwards caused by the denuding action of water going on for ages. It also appears that this tract is connected with the Limai range in the Tipperah district to the east, and with the stiff red clay formation found all over the Northern Bengal and in the western part of the Assam valley. In the districts of Rajshahye, Pubna, Dinagepur, Rangpur and Kamroop, wherever this red clay comes to the surface, the villages built on or in the neighbourhood of it have invariably received the name of Rangamati (the red clay). The most probable origin of this red clay seems to be that it is the relic of an alluvion deposited by rivers that existed long before the present system of rivers now found in Bengal came into existence ; that the rivers Brahmaputra, the Ganges and their numerous tributaries in North Bengal, cut their channels through this alluvion when they were excavating as opposed to depositing streams, and that the Madhupur jungle partly escaped from this excavating action owing to the peculiar position of the Garo hills with reference to the Brahmaputra river. Mr. Blanford, I believe, rather too hastily rejected the third hypothesis enunciated by him, that the alluvion of the Madhupur area may have been deposited by some other river than the Brahmaputra. In his opinion the hypothesis is unsatisfactory, because the alluvion could have been formed neither by the Ganges nor by the Sylhet rivers. The fact is, if the nature of the red clay and that of the underlying sand be taken into consideration, it is difficult to see

how the alluvion of the Madhupur jungle could have been formed by the Brahmaputra any more than by the rivers Surma and the Meghna to the east and the Ganges to the west. The red clay of the Madhupur jungle is very different from the clay formed by any of the rivers mentioned above, and the underlying sand bears no resemblance to the micaceous white sand brought down by the Himalayan rivers.

16. *B.*—The rest of the district consists of recent alluvial formations lying to the east, west and south of the Madhupur jungle, and the greater portion of it is comprised within the depressed area mentioned above. System after system of rivers, differing much as regards their volume, the nature of the silt brought down by them, and the place of their origin, passed over this tract, and the alluvion deposited by one river has sometimes been superimposed and sometimes replaced by the alluvion of the river following it. It is divided into two parts—(*a*) the dearahs of the Meghna and the Brahmaputra; (*b*) the part of the district to the west and south of the Madhupur jungle. (*a*) This tract, especially towards the north, is comparatively a good deal more elevated than the dearahs in the western and south-western part of the district. The soil is a sandy loam, fine in texture and rich in organic matter. It is the great jute-growing place of the district. Compared with other parts of the country it is much less wooded. This paucity of trees is partly due to the fact that the churs of the Meghna, which compose the greater portion of this tract, have been formed within very recent times, and partly to an unaccountable reluctance on the part of the Mahomedan cultivators, who form by far the majority of the population here, to planting trees. (*b*) This division embraces by far the most prosperous part of the district. The river Dhaleswari passes through it from one end to the other, and it is also intersected by numerous smaller streams. The general slope of the country is from north-west to south-east, and across this line the land has been rendered wavy by the banks of rivers having been raised above the intermediate tracts, which are mostly occupied by jheels. With the exception of a strip of land along the left bank of the Padma, the whole of it is inundated during the rains to a depth varying according to localities, and in some places so much as 20 feet. "At this season of the year it presents the appearance of an extensive plain, covered with growing rice, through which boats sail from one part of the country to another. The course of the rivers at a distance is indicated by belts of trees along their banks, while the interior of the plain is studded with villages built upon artificial mounds of earth raised above the height of the inundation. These little islands vary in extent, some of them only affording room for the huts of two or three families of ryots with their cattle, while others are of a considerable size and covered with villages and gardens." These villages are so little raised above the ordinary inundation level that in years of high floods they are submerged under water, and considerable damage and distress are the results. The soil on the banks of the numerous streams is a coarse light sand, on which jute and *aus* paddy are extensively grown. That on the margins of the jheels, which especially abound in the southern and north-eastern parts of this division, is a stiff black clay, well suited to the long-stemmed rice and some of the pulses. Considerable changes have taken place in the nature of the soil in this division since the time of Major Rennell's survey by the shifting of the course of the Brahmaputra. These changes are still going on, but at a much slower rate, and it is probable that in course of time the prevailing soil in this division from being a stiff clay will become a more or less coarse sand. The result of this will be that the area of paddy will be considerably contracted, and that of jute and mustard will increase in proportion.

Map 1.

17. *Changes in the river-courses.*—One very interesting and important physical feature of the district is the constant changes that are going on in the courses of its rivers. Instances are not uncommon of the same spot of land being twice washed away and twice re-formed and rendered habitable within the short space of 20 years. The causes of such changes in an unfinished delta like that of Lower Bengal are not far to seek. One great peculiarity of deltaic rivers is that they oscillate in curves, the extent of which, as pointed out by Mr. Fergusson in the paper already referred to, is directly proportional to the quantity of water flowing down the channel. Owing to this oscillatory

movement the current strikes alternately on its right and left banks, and as a practical consequence there is found on one side of the river an almost perpendicular bank more or less elevated above the stream, according to the season, and with deep water near it, and on the opposite side a bank shelving away so gradually as to occasion shallow water at some distance from the margin; a succession of this state of things is observed in going up or down the river. At every point where the current strikes the bank there is a tendency of the river to force its way through it, and should the current be sufficiently strong to force itself through the opposing bank, and should the land beyond the bank have a greater slope than the bed of the existing channel, a new channel is sure to be formed. The condition as regards the slope of the land, though not the immediate, is the most important cause of the shifting of river channels in the deltas, and it is fulfilled thus.

The silt borne by a river, which, owing to its passing through a comparatively level tract of country, has turned from an excavating into a depositing agent, is accumulated partly on the sides, thus gradually embanking the river, and partly on its bed. These two things go on simultaneously till the banks having been raised above the inundation level, almost the whole of the silt which is not carried into the sea is laid on the bed of the river, which is thus gradually raised, and at length it becomes higher than the low land beyond the raised banks of the river. The river then falls into this, and going through the same process it fills that depression and then goes on to the next; after a long cycle of years it comes back again to the country it at first left. In passing through a country which has thus been abandoned by a river, we meet with a succession of raised grounds marking the positions the river banks occupied at different times, and the land between them sloping in the direction opposite to that which the river took in shifting its course. An exceedingly interesting and beautiful instance of this may be seen in going towards Ramgopalpur, a village in the Mymensingh district, from the town of Mymensingh.

18. The importance of this fact of the constant changes that the river-courses in Bengal are undergoing it is impossible to overrate, whether we view it from the standpoint of the antiquarian, the economist, or the sanitarian, and the reason why these changes do not strike us in the way that they should is simply that we meet with them almost every day.

19. *The old Ganges.*—The oldest river, of which any trace could be found in the district, is the ancient channel of the Ganges. We have already alluded to the depressed area to the west and south-west of the Madhupur jungle. Major Rennell and Buchanon Hamilton had connected this with the jheels in the Purneah and Rajshahye districts, and pointed out that they marked the old bed of the Ganges. There is one very singular fact in connection with this depressed area, namely, that all along its course from Purneah down to Barisal, there is to be found a number of small streams very circuitous in their course, and some of them exceedingly deep compared with the smallness of their size, all having their names ending in Ganga, *e.g.*, the Ban or wild Ganga in Purneah, the Kali or black Ganga, the Pora or extinct Ganga, the Boori or old Ganga in Dacca, and the Hariganga in Barisal. The word Ganga here probably means simply a river, and not the Ganges, as Major Rennell and others supposed; but in any way the fact is strange.

20. The course this old river took in the Dacca district is probably not exactly what Major Rennell made it out to be. Major Rennell traced out its course from Purneah through the lakes and morasses of Rajshahye and Pubna to Jaffergunge, and then through the beds of the Kaliganga and Booriganga to a junction with the Meghna near Firingibazar. This supposition, says Major Rennell in another place, "that the Ganges once joined the Meghna, where the Ichhamati now (at the time of Major Rennell's survey) does, accounts for the singular breadth of the Meghna below Moonshigunge." Now a look at the old maps will show us that from Jaffergunge the line of drainage passes not towards Moonshigunge, but a good deal to the west of this latter place. In the Dacca district, if anything marks the old channel of the Ganges, it is the Airal jheel, named Churan jheel by Major Rennell, and from Airal jheel the line of drainage goes not north-eastward towards Firingibazar, but in a south-easterly direction towards the great morass in the centre of the Barisal district and ends at the

Maps 02 and 03.

Haringhata channel. As regards the singular breadth of the Meghna below Moonshigunge, an explanation will afterwards be given which is based on known facts.

21. It will not be possible to fix the time when this channel was forsaken by the Ganges, but an attempt will afterwards be made to put down chronologically, one after another, the probable changes that took place in the course of this mighty river, and to connect them with some statements of Hindu mythology. This much, however, is certain, that the shifting of the channel of the Ganges must have taken place at a very ancient time, for the river Ichhamati, which passes right across this bed, separating the Airal jheel from the low plains of Jamsha, is, if not already an extinct river, fast dying away, and being forgotten even by men who live on its banks.

22. *The Ichhamati.*—The oldest river in the west and southern Dacca, which is not yet quite extinct, is the Ichhamati mentioned above. By the aid of old maps, local tradition, revenue papers, and of portions of it still in existence, I have been able to trace its course from near the Nathpore factory (below Jaffergunge) opposite to the mouth of Hurasagar down to the Jaginighat near Moonshigunge. The task has been rather a difficult one, owing to the many mistakes made about this river by Major Rennell, Dr. Taylor, Captain Sherwill, and Sir W. Hunter. There can be no doubt that Rampal was situated near the junction of this river with the Brahmaputra. Between the years 1780 and 1840, the river Dhaleswari, strengthened by a strong current from the Brahmaputra, of which for a time it was something like the main channel, produced considerable changes in Western Dacca and appropriated to itself all that part of the lower course of the Ichhamati which lies between Patharghata and Ramkristadi and between Bayaragadi and Moonshigunge though the portion of it from Firingibazar to where the Dhaleswari now joins the Meghna, long retained the name of Ichhamati. Sir W. Hunter speaks of Firingibazar and Idrakpur as being situated on a branch of the Ichhamati: the fact is that it is not on a branch, but on the main channel itself that these two villages were situated, but this part of the channel long retained the name of the Ichhamati, though encroached upon and broadened by the Dhaleswari, the part of the channel between Firingibazar and Bayaragadi losing its name. The Ichhamati is comparatively a very old river, and at one time it was the most important river on this side of the Dacca district. There are no less than five sacred bathing ghâts on its banks, namely, at Tirthaghâta, Agla, Solpur, Barunighat, and Jaginighat, the latter being at the junction of the Ichhamati with the Brahmaputra. The significance of this fact becomes evident when we remember that no such bathing ghâts are in existence on the banks of such big rivers as the Padma and the Dhaleswari. It is also on the banks of the Ichhamati that the most ancient and important Portuguese settlements are situated. The course of the Ichhamati above Jaffergunge is more difficult to trace out. A comparison of the old with the new maps of this part of the country will show that very great changes have taken place in the course of rivers near Jaffergunge. At the time when Major Rennell made his survey, the Ganges used to flow past by Jaffergunge. The Dhaleswari was then a branch of the Ganges, occupying the channel now nearly silted up and known as the Ghazghata. To the north of that river is marked a small stream called the Ichhamati, which, coming from Dinagepur as a branch of the Karatoya, joined the Dhaleswari at a point exactly opposite to where the Ichhamati of the Dacca district ended. The Ichhamati of the Dinagepur district is also mentioned by Buchanon Hamilton, and though it has since dwindled into a very insignificant stream, traces of it are still in existence. From the way it has been marked in Major Rennell's map, there can be no doubt that the Ichhamati of the Dacca district was at one time simply a continuation of the river of the same name, forming a branch of the Karatoya. The Dhaleswari, which is a much younger river, afterwards flowed across it and cut it off from its source. A similar instance of a larger river of a much later origin, dividing a smaller but much older stream into two portions, we have in the case of the Bhairab river. This river was originally a branch of the Bhagirathi, having its source above Moorshidabad, and passed through the districts of Moorshidabad, Nuddea, and Jessore, but was

Maps 01 and 02.

Map 04.

afterwards cut into two portions by the river Jellinghee. That the Ichhamati of the Dacca district was connected with the Karatoya is also evident from the fact that the ceremony of bathing at the sacred ghâts on the Ichhamati takes place on the day of the full moon in the month of Kartik (October —November) on which a similar ceremony is performed on the Karatoya. Major Rennell also marks another branch of the Ichhamati extending from the Ganges near Pubna to Hurasagar, opposite to Jaffergunge. This Ichhamati also is now in existence, and forms a sort of branch both of the Ganges and the Jenai, the water running sometimes from the Jenai towards the Ganges, and sometimes in the opposite direction. There is another Ichhamati passing through the Nuddea and the Jessore districts and extending as far as the sea. It was not far from this river that the ancient city of Jessore or Iswaripore was situated. There exists a tradition among the fishermen living on the banks of the Ichhamati in the Dacca district that the three Ichhamatis mentioned above once formed parts of the same river. This does not seem improbable, and instances are not wanting of a river after it has run for some distance dividing itself into two branches and both the branches retaining the name of the parent stream, *e.g.*, the Narad river in the Rajshahye district.

Map 04.

23. From the researches made by Major Rennell, Buchanon Hamilton, and others, it becomes exceedingly probable that the river Cossye or the Koisiki, as it is called in the Ramayan, once extended as far as the mouth of the Hurasagar. Buchanon Hamilton mentions "that the pundits or natives of learning, who inhabit its banks, allege that in time of remote antiquity the Koosi passed south-east by where Tajpore is now situated, and from thence towards the east until it joined the Brahmaputra, having no communication with the Ganges." According to Buchanon Hamilton, this opinion seems highly probable. In order to make this opinion consistent with facts, Mr. Fergusson supposes that the Brahmaputra had once before its main channel passing by the west of the Dacca district, as it at present does. Now, if what we have stated as regards the Ichhamatis of the Dacca and Pubna districts being mere branches of the same river be true, as from their position it becomes highly probable, such a far-fetched supposition as Mr. Fergusson has made becomes unnecessary.

Map 05.

24. As stated before, it is not possible to fix the time when any of the changes mentioned above took place; but from a careful study of the literature on the subject, the following seems to me to be their probable chronological order:—

(1) At a very ancient time the Ganges occupied the channel that is marked in all old maps by a chain of jheels and morasses extending from the Purneah district to the sea, and passing through Purneah, Rajshahye, Dacca and Barisal.

Maps 02 and 03.

(2) This course was afterwards forsaken in favour of the channel through which the Bhagirathi now passes. This fact has been mythologically represented as the bringing down of the Ganges by Bhagirathi from the heavens to the place where the sage Kapila lived, for, though Bhagirathi is one of the names of the Ganges, it is the lower portion of the Ganges, below the head of the Delta, that is especially so called, and that it was on the Sagar islands that Kapila's house was situated.

(3) The Koosi and the Ichhamati came into existence and occupied portions of the forsaken channel of the Ganges.

(4) The Ganges again shifted its course eastward, and its first important step in this direction was the Navaganga or new Ganges. This river is marked in old maps all the way from Damorda on the Ichhamati in the Kishnaghar district to the morass in the Barisal district above the Haringhata channel. Above Damorda it passed very probably through the Meherpur subdivision, and was connected with the Bhagirathi somewhere below Berhampore. This part of the country is marked by Captain Serwill "as showing traces of having in former ages been occupied by the beds of rivers." It was about this time that the Ichhamati

Map 03.

of the Jessore district was for the first time cut off from its upper course in the Pubna district.

(5) The Ganges shifted its course further to the east and excavated the channel known as the Padma. This fact is stated in the mythology as the parting company of the two sister river goddesses, the Ganga and the Padma.

Map 03.

25. *The Bhuvaneswar.*—From revenue papers in the possession of the family of the late Raja Shama Sankar of Teota, as well as from Dr. Taylor's Topography of Dacca and local tradition, it appears that a river of the name of Bhuvaneswar used to flow from north of Jaffergunge and passed by Teota in a south-easterly direction. Probably the river Bhuvaneswar of the Faridpur district now indicates the lower course of this river. When Major Rennell made his survey a great change had taken place: the Padma had forsaken the channel to the west of Faridpur, marked in the revenue survey maps as Marapadma or extinct Padma, and appropriated the channel of the Bhuvaneswar as far as Jaffergunge, and sent forth eastward a branch of the name of Dhaleswari. When the Ganges was thus pushing itself northward, the Brahmaputra was undergoing changes that altered the whole aspect of the western and southern parts of the Dacca district. That river had by the immense quantity of silt that passes through it considerably raised all the land along its course between Dewangunge and Bhairab bazaar. One who is not acquainted with this part of the country can hardly form an idea the height to which this land has been raised when compared with the Sylhet jheels on the one side and those of Pubna and Rajshahye on the other. A shifting of its course therefore became inevitable. Its first attempt in this direction was to send forth two small streams a little above the subdivisional town of Jamalpur in the Mymensingh district, and at the time a military cantonment. These two branches uniting about 14 miles below formed a wide river, and took the name of Jenai or Jabuna, which, after running a course of about 50 miles, divided again into two branches; of which the western one was the upper course of the Bhuvaneswar mentioned above, and the eastern one under the name of the Elumjani, passing by the indigo factory of Tasri and the populous village of Kedarpur, joined the Dhaleswari a little to the west of the ancient village of Tille. The next thing the Brahmaputra did was to widen the rivers Jenai and Bhuvaneswar, and to push the Ganges southward. This was, however, checked for a time by the Ganges near Jaffergunge having been strengthened by the Nattore rivers that found egress through the mouth of the Hurasagar, and the Jenai attempted to escape the conflict by cutting off the angle at Atia and joining the Dhaleswari through the Elumjani and the Conai, especially the former. It was about this time that the Dhaleswari formed something like the main stream of the Brahmaputra, and appropriated to itself the channel of the Ghazekhali between Singair and Sabhar, a portion of that of the Bansi and the channel of the Ichhamati between Patharghata and Ramkrishnadi, and from Bayaragadi down to Moonshigunge. The Padma, however, was beaten down, and for a time it began to force its water through the Goori. In 1857 Captain Sherwill wrote as follows :—"The Goori is becoming broader every year, its fierce current is rapidly cutting away its banks, and in a few years will most likely absorb the greater portion, if not all, the water from the Padma." This channel, as well as that of the Chandna, through which the Padma tried to force its waters at the time [1863] of Mr. Fergusson, did, however, prove too small for the purpose. Eventually the Padma shifted its course southward near Jaffergunge, and, strengthened by the mighty stream of the Brahmaputra, excavated a channel from three to five miles broad between the Dacca district on one side and the districts of Faridpur and Barisal on the other. In Major Rennell's atlas is marked a small river of the name of Kaliganga connecting the Ganges with the Meghna, and passing through the pergunnah of Rajnagar, formerly included in the Dacca collectorate. The united streams of the Padma and the Brahmaputra widened this small stream into the present Kirtinasa and washed away the important city of Rajnagar, the abode of Raja Rajballav, and a considerable portion of the pergunnah of the same name, and joined the Meghna near Chandpur.

Map 1.

Maps 03 and 1.

26. *The old bed of the Brahmaputra.*—Before the changes in the course of the Brahmaputra described above took place, many changes had already occurred in its channel passing by the east of the Dacca district. The present eastern channel of the Brahmaputra joins the Meghna at Bhairab bazaar, at the trijunction of the Mymensingh, Dacca and the Tipperah districts, but this was not always so. I have had some difficulty in tracing out the course of the oldest eastern channel of the Brahmaputra, for on this point all the previous writers had made mistakes, excepting Buchanon Hamilton, and the evidence of the latter writer is only of a negative kind. He simply made a statement to the effect that the present eastern channel after Agarasindu was not formerly called the Brahmaputra. There is an old bed of a river extending from Panchdona down to the Kalagachia mouth on the Dhaleswari, and having on its sides the villages of Nangalband and Panchamighat, which is still called the Brahmaputra. Annual sacred bathings take place at these villages, and fairs are held on the occasion. There is no doubt that this is a portion of the old channel of the Brahmaputra. But how to connect this portion with the channel above Agarasindu? In the recent revenue maps of the country there is marked an old bed of a river that extends from the village of Aralia about a mile down Agarasindu to Lakhpur, and then taking a south-easterly direction joins the portion of the old bed of the Brahmaputra traced out above. There can be little doubt that this was the most ancient channel, and that it is simply by mistake that the portion of the bed between Aralia and Lakhpur has been marked in the revenue maps as the old bed of the Lakhya, a river which took its name from Lakhpur (Lakshmipur) and branched off from the Brahmaputra close to this place.

Map 1. Map 06. Map 1.

27. The old channel of the Brahmaputra, however, did not terminate at the Kalagachia mouth, but passed by Rampal, the capital of Ballal Sen, and joined the Meghna below Rajabari. The small creek to the east of the subdivisional town of Moonshigunge and the river further down, now known as the Sherazabad river, are the traces left by this portion of the channel of the Brahmaputra. We have three different proofs of this fact—1*st*, in the revenue survey maps the Sherazabad river has been marked as the old bed of the Brahmaputra; 2*nd*, a sacred bathing takes place on the bank of this river on the day on which a similar ceremony is performed near the villages of Nangalband and Panchamighat; 3*rd*, in a copper plate found at Rampal it is mentioned that that city was situated on the western bank of the river Lahitya, which is the ancient name of the Brahmaputra; and yet, strange to say, this fact has not been mentioned by any of the previous writers on the subject. When this southern portion of the Brahmaputra was cut off from the portion above Kalagachia, I have not been able to ascertain. The probability is that the whole of the channel of the Brahmaputra to the south of Agarasindu having silted up, the river took an easterly direction and joined the Meghna, first, at Narsingdee through the Arialkhan channel, and then at Bhairab bazaar. When the Dhaleswari became for a time the main channel of the Brahmaputra, it found it a comparatively easy task to cut the old silted bed. Another explanation is also possible, and we shall come to it presently. The river Banar is now a branch of the eastern channel of the Brahmaputra, and forms the upper course of the river Lakhya. This, however, was not the case formerly. It was an independent river, having its source in the midst of the Madhupur jungle, near Gupta Brindaban, and joined the Lakhya somewhere near Lakhpur. When, however, the lower course of the Brahmaputra to the south of Agarasindu silted up, that river sent its waters partly towards Bhairab bazaar and partly through a new channel excavated through the red clay and joining the Brahmaputra with the Banar. This channel by its superior strength appropriated the upper course of the Banar, and eventually the whole stream from Agarasindu down to Lakhpur received the name of Banar, which name is also sometimes applied even to the Lakhya, and by a strange confusion of terms a portion of the real Banar above Naonda Sagar ceased to be called by that name. The

Map 1. Map 06. Map 1.

separation of the old channel of the Brahmaputra into two portions at Kalagachia might have been the work of the Lakhya strengthened by this new Banar.

28. We have still a few more minor changes in the river-courses of the district to relate. The Ghazekhali was formerly a river of some importance in western Dacca. It was the result of the union of two streams—one coming from the Bansi, and another under the name of the Kanai (the Conai of Major Rennell and Dr. Taylor) flowing from beyond Atia and joined the Bansi near Sabhar. The Dhaleswari, which formerly used to flow almost in a straight line from Singair to Chandar, about eight miles from Sabhar, shifted its course northward, and appropriated all that part of the Ghazekhali below Singair, and is now washing away Sabhar. The river Booriganga, which was simply a continuation of the Bansi, became an important branch of the Dhaleswari, and thus strengthened appropriated to itself the lower course of the Toorag. There was formerly a small stream of the name of Heera, which connected the Bansi above Dhamroy with Ghazekhali at Soongar. The lower portion of this river has ceased to exist, and only a trace of it is to be seen in the Raghunathpur jheel.

Map 01.

29. The Dhaleswari is no longer such an important river as it was when the Brahmaputra was first pushing itself through the Jenai channel. Its upper course has ceased to be navigable during the dry season, and it is shifting its course northward. This was at first the Gazghata channel, then the Silmabad channel, and now it is the Porabari or Mythien channel. The quantity of water that passes through the Dhaleswari between Paharpur and Sabhar is again annually diminishing by the opening of a new channel of the name Alum. This river is about six years old, and has appropriated a portion of the old bed of the Kanai mentioned above. When I visited this river during the last rains, I found it had lost itself in the Chowhat jheel, about seven miles to the north-west of Dhamroy; but I have no doubt that, as is often the case with rivers passing through marshes and low lands, it will take a little time to embank itself and then join with the Bansi somewhere near Dhamroy, or it may open up the old channel of the Heera river mentioned above. The benefits to be derived from this new river are likely to be very great. It will fill up all the low ground to the north-west of Sabhar, and turn it into rich alluvial land. The effect of this new river on the navigability of the Booriganga it is difficult to predict, but from the configuration of this part of the country the probability is that the course of the Dhaleswari near Sabhar will be shifted to the west, and the silting process that has been at work for some time in the Booriganga will, if anything, go on with increased rapidity.

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## CHAPTER II.—Agricultural Population.

30. *The number of persons engaged in the agricultural pursuit.*—The Census Report of 1872 gives the total number of adult males engaged in the cultivation of land as 280,698. In the same report the ratio of the male children to the male adult population among the Mahomedans is given as 21 to 28·4. The ratio is somewhat less among the Hindus. We will therefore not under-estimate the number of children by assuming this ratio to hold good for the whole of the agricultural class. The total male agricultural population in 1872 was on this assumption 488,256. Now, considering that almost in every instance the number of the female population of a community is very nearly equal to that of the male population, we will not be far from truth if we put down the male and the female portions of the cultivating class at the same figure. From the census of 1872, therefore, we get 976,512 as the total agricultural population of Dacca.

In the same report the total population of the district is given as 1,852,993 souls. In 1872, therefore, the cultivators formed 52·69 per cent. of the total population of the district.

31. The Census Report of 1882 gives the total population of the district as 2,116,350, and the total agricultural population as 1,232,990. In 1882, therefore, the agricultural population formed 58·26 per cent. of the total population.

32. In the ten years that elapsed between the taking of the two censuses, whereas the total population of the district has increased only by 14·21 per cent., the agricultural population has increased by 26·26 per cent. Of this increase a portion is due to the emigration of population from other districts, especially from Mymensingh, Tipperah and Noakholly into the dearahs of the Meghna in the Roypura, Moonshigunge and the Naraingunge thanas, and another but a smaller portion to the fact that some persons who used to follow other pursuits in 1872 turned cultivators between the years 1872 and 1882, because their own professions ceased to be remunerative. Another portion again may be accounted for by the figures of 1872 being less accurate than those of 1882; but after allowances have been made for all these, I do not think that the increase, due simply to the multiplication of the agricultural population that existed in 1872, will be less than 20 per cent. The significance of this fact is evident when we come to deal with the pressure of population on the area under cultivation.

33. *Castes engaged in agriculture.*—Taking the whole district into consideration, all the castes of the Hindus are more or less engaged in the agricultural pursuit, with the exception of the three upper classes—the Brahmins, the Baidyas, and the Kahesthas. Among the Mahomedans it is only members of the old, respectable and well-to-do families who do not take to this profession. These, as well as the three Hindu castes mentioned above, whenever they undertake cultivation of land, invariably engage hired labour, or follow the Barga system, *i.e.*, they allow the common agriculturists to cultivate land belonging to them or rented by them, and sometimes also contribute something towards the expenses of cultivation, on condition of their getting a portion of the produce, which varies between half and one-third. There are, however, very few gentlemen farmers in the Dacca district. Among the lower classes of Hindus the Banias are the least engaged in agriculture. These almost invariably follow their own profession, and are either big merchants or common shop-keepers, and they always manage to earn a much better livelihood than the cultivators of the soil. The two classes who form by far the majority of the cultivators of the Dacca district are the Mahomedans and a very low-caste of Hindus called the *Namasudras* or *Chandals*. Thus—

| | | | |
|---|---|---|---|
| At Kaliakur— | | | |
| The Mahomedans form | ... | 50 | per cent. of the total cultivators. |
| „ Namasudras „ | ... | 25 | ditto ditto. |
| At Mirzapur— | | | |
| The Mahomedans form | ... | 62·5 | per cent. of the total cultivators. |
| „ Namasudras „ | ... | 20 | ditto ditto. |
| At Tangi— | | | |
| The Mahomedans form | ... | 75 | per cent. of the total cultivators. |
| „ Namasudras „ | ... | 12·5 | ditto ditto. |
| At Kaligunge— | | | |
| The Mahomedans form | ... | 50 | per cent. of the total cultivators. |
| „ Namasudras „ | ... | 12·5 | ditto ditto. |
| At Taki— | | | |
| The Mahomedans form | ... | 87·5 | per cent. of the total cultivators. |
| „ Namasudras „ | ... | 6·25 | ditto ditto. |
| At Hariskul— | | | |
| The Mahomedans form | ... | 50 | per cent. of the total cultivators. |
| „ Namasudras „ | ... | 43·75 | ditto ditto. |
| At Lahajang chur— | | | |
| The Mahomedans form | ... | 93·75 | per cent. of the total cultivators. |
| „ Namasudras „ | ... | 6·25 | ditto ditto. |
| At Kaoraid— | | | |
| The Mahomedans form | ... | 50 | per cent. of the total cultivators. |
| „ Namasudras „ | ... | 25 | ditto ditto. |

At Oojilabo—

The cultivators are all Mahomedans.

At Teota—

| | | | |
|---|---|---|---|
| The Mahomedans form | ... | 50 | per cent. of the total cultivators. |
| „ Namasudras „ | ... | 25 | ditto ditto. |

At Baghair—

| | | | |
|---|---|---|---|
| The Mahomedans form | ... | 62·5 | per cent. of the total cultivators. |
| „ Namasudras „ | ... | 25 | ditto ditto. |

At Rashakati—

All the cultivators are Mahomedans.

At Patali—

All the cultivators are Mahomedans.

In the Census Report of 1882 the 411,928 male adults returned as engaged in cultivation have been thus classified according to religion :—

| | |
|---|---|
| Mahomedans ... ... ... ... | 293,886 |
| Hindus ... ... ... ... | 116,061 |
| Others ... ... ... ... | 1,981 |
| | 411,928 |

The preponderance of Mahomedans among the cultivating classes is due partly to the fact that the Mahomedans form 59·09 per cent. of the total population, against 40·47 per cent. of the Hindus, and partly to there being proportionately more men engaged in other pursuits among the Hindus than Mahomedans.

34. *The Mahomedan and the Namasudra cultivators compared.*—The Mahomedan cultivators are intelligent and adventurous, but somewhat lazy, and exceedingly careless in spending money. With the exception of those among them whose extravagant habits are kept in check by extreme poverty, it will be difficult to find a single family who do not live beyond their means. They spend not so much to live comfortably as to pass for rich men. As a consequence the Mahomedan cultivators do not rise beyond a certain stage, and when they have reached this point, their condition invariably declines, and they ultimately get ruined. The Namasudras are more industrious, persevering and economical, but somewhat less intelligent than their Mahomedan fellow-cultivators, rather obstinate and of a very excitable temper. On the whole they are the best cultivators of the district, and quite a rising class. Many members of this class are by profession boatmen as well as cultivators of land, and with the profits of these twofold pursuits earn a very fair income annually. I give below the annual receipts from cultivation and other sources of a well-to-do Namasudra ryot living at Jaypura, some 3 miles to the west of Dhamroy. The family consists of three brothers, of whom two are married, and an old mother, *i.e.*, in all six members :—

*Approximate annual income.*

| | | | | | | Rs. |
|---|---|---|---|---|---|---|
| 70 | maunds of | peas, | worth about | ... | ... ... | 80 |
| 125 | „ | paddy | „ | ... | ... ... | 150 |
| 2 | „ | til | „ | ... | ... ... | 6 |
| 3 | „ | cheena | „ | ... | ... ... | 6 |
| 1 | „ | kaon | „ | ... | ... ... | 4 |
| | | | | | | 246 |
| Wages and salaries received as boatmen | | | | | ... ... | 70 |
| | | | | Total | ... | 316 |

or on the average nearly Rs. 53 per head.

35. As regards their skill in the art of agriculture, the cultivators of the Dacca district are in a backward condition when compared with their brethren of the Burdwan and Hooghly districts. The system of cultivation followed by them is more primitive and confined to the growing of fewer crops. The agricultural knowledge of the majority among them is limited to the cultivation of paddy, one or two pulses, mustard and jute. The most skilful and intelligent cultivators of the district are the Mahomedan cultivators of Rampal in the Moonshigunge subdivision, and the Feringi [Franks—descendants of Portuguese settlers in the district] cultivators of the police station of Kaligunge.

36. *Houses.*—The cultivators of the Dacca district live in houses much inferior to those of the ryots of Burdwan and Hooghly. The houses are almost invariably thatched huts, and those ryots who have pucca houses or tin houses either are not cultivators at all, or combine some other pursuit with the cultivation of the land. The roofing of these huts consists of a framework of bamboos thatched with the straw of ulu (*saccharum cylindricum*) or kaola, another species of *saccharum* with large flat leaves growing in the Madhupur jungle. These grasses are so plentiful in the district that it is not necessary to use paddy straw as a thatching material, as is done in West Bengal. The posts are generally of bamboos, but in case of the houses of the well-to-do cultivators, or those of ryots within the area of the Madhupur jungle, they are made of the *gazari* wood, an inferior variety of sâl growing in many parts of the jungle. The beams and rafters are also made of bamboos. The walls are usually made of *kash* grass or *ikar* grass, often lined internally with a coating of clay mixed with dung. In the Bhawal and Kasimpur pergunnahs mud walls are generally used, and the richer class of cultivators all over the district have the walls of some of their houses made of mats and split bamboo, presenting a very neat appearance. The number of houses vary according to the means of their owners, as well as to the locality.

At Kaliakur—

The richest cultivators have about five houses, of which two are used as bed-rooms, one as kitchen, and two as cowsheds (one for night and one for day-time).

At Sayedpur—

The richest cultivators have about seven houses, of which four are used as bed-rooms, one as baithakhana (sitting-room), one as kitchen, and one as cowshed.

And the poorest cultivators have two rooms, and some only one.

At Mirzapur—

The richest cultivators have about five houses. The poorest have two houses, and some one house only.

At Tangi—

The richest cultivators have about seven houses, of which one is used as kitchen, one as cowshed, and the rest as bed-rooms.

The poorest cultivators have only two houses—one for themselves and one for their cattle.

At Kaligunge—

The richest cultivators have about five houses, of which one is used as golaghar (barn), one as kitchen, one as cowshed, and two as bed-rooms.

At Kaoraid—

The richest cultivators have about ten to twelve houses, of which one is used as kitchen, two as cowshed, and the rest as bed-rooms.

The poorest cultivators have two houses, and in some cases only one.

At Airal—

The richest cultivators have four to five houses. The poorest cultivators have two houses.

At Oojilabo—

The richest cultivators have six or seven houses, of which one is used as kitchen, one as cowshed, one as drawing-room, and three or four as bed-rooms. The poorest cultivators have one or two houses.

At Atti—

A common ryot has two to three houses, of which one is used as kitchen, one as cowshed, and one as bed-room. There are some ryots who have six to seven houses.

At Teota—

The richest cultivators have about five houses, of which one is used for kitchen, one for cowshed, one for barn, one for out-house, and one for living.

The poorest cultivators have two or three houses, and very few have only one house.

At Baghair—

The well-to-do cultivators have about four houses. The poorest cultivators have one or two houses.

At Rashakati—

The richest cultivators have about six or seven houses, of which two are used for cowshed, one for kitchen, and the rest for living.

The poorest cultivators have two or three houses, of which one is used for cowshed, one for kitchen, and one for living.

37. *Furniture.*—There are very few articles of furniture to be found in the house of a ryot who follows the agricultural pursuits, pure and simple. These consist of a few mats, one footstool, and a few *piris* (pieces of planks used as seats), and sometimes even the footstool and the *piris* may be wanting. In the houses of some Mahomedan ryots, however, who, besides cultivating the land, serve as carriers of goods from one district to another, I found chairs, tables, and *taktaposhes* (wooden bedsteads).

38. *Plates and domestic utensils.*—Intelligent and well-informed old men of the district told me that some fifty years ago the ryots of the district had not even a sufficient number of common earthenware plates. For want of anything better the Hindu ryots almost invariably used to take their food on plaintain leaves, and drink water from cocoanut shells. A great improvement has taken place in this respect, and it is now difficult to meet with a single ryot who has not two or three *kansa* plates (*thalas*) and a brass water-pot (*lota*).

The following is a list of plates and utensils possessed by a well-to-do cultivator:—

1. Brass plates, one or two in number.
2. Kansa plates, two to three in number.
3. Stone plates, two.
4. Stone cups, three.
5. Brass cup, one.
6. Kansa cups, four.
7. Brass water-pots, two.
8. Drinking cups, two.
9. Glass tumbler, one.
10. Iron pan, one.
11. Brass cooking-pot, one.
12. Several earthen pots of various sizes and forms.

39. *Conveyances.*—The rivers are the highways of the district, and boats are the most common conveyances. These boats are of various sizes and forms, and their prices vary between Rs. 10 and Rs. 100. The sort of boat the cultivators possess is of the smallest size, and without any cover and fixed helm. About 10 per cent. of the cultivators have boats—one for every household or family. More boats are possessed by those living in churs and on the riversides than cultivators in the interior. These boats are mostly used during the rains in bringing fodder for the cattle and the harvested paddy from the fields, in attending the markets, and in conveying themselves and their families when visiting

friends and relations in other villages. In some parts of the Madhupur jungle canoes are in use. The poorer classes of ryots in some places make use of rafts made of plantain trees. Others, again, use earthen tubs. Such costly conveyances as horses and palkies are seldom possessed by the cultivators, though some of them make use of these during marriage ceremonies.

40. *Food.*—The food of a cultivator of average means in the Dacca district consists of cooked rice, either soaked or not in water and left overnight, dâl or soup made of some split pulse, mostly peas and khesari, fish and vegetables made into curries, and *shakbhaji*. He seldom takes milk, sugar or ghee. The dried preparations of rice, such as *muri*, *khai* and *chira*, are much in use, especially among the Hindu cultivators. The Mahomedan cultivators sometimes enjoy fowl and eggs, but these things cannot be said to form their ordinary food. The cultivators generally take three meals daily—once early in the morning before going to the field, and this meal generally consists of soaked rice in the summer and cold rice in the winter and a little cold curry or dâl. The rice is often eaten only with a pinch of salt and a capsicum. The Hindu cultivators sometimes take *muri* in the morning with a little *gur*, or even without it. The midday and night meals consist of boiled rice and some curry or dâl, or both. The money value of the daily food of a family consisting of eight members, namely, a man and his wife, an adult son and five children, is given below :—

| | Rs. | A. | P. |
|---|---|---|---|
| Rice, 5 seers in three meals ... ... ... | 0 | 4 | 0 |
| Dâl ... ... ... ... ... | 0 | 0 | 4½ |
| Vegetables ... ... ... ... ... | 0 | 0 | 4½ |
| Salt ... ... ... ... ... | 0 | 0 | 3 |
| Oil ... ... ... ... ... | 0 | 0 | 4½ |
| Spices ... ... ... ... ... | 0 | 0 | 3 |
| Fish ... ... ... ... ... | 0 | 0 | 6 |
| Tobacco and betel ... ... ... ... | 0 | 0 | 4½ |
| Total ... | 0 | 6 | 6 |

*i.e.*, on the average Rs. 18-8-6 per head per annum.

41. *Dress.*—The dress of a Hindu cultivator consists of a *dhuti*, *i.e.*, a piece of cloth, generally of English manufacture, wrapped round the waist and about nine feet long, and a thick cotton sheet about seven feet long. When at work, instead of the sheet a napkin, generally of country manufacture and about four feet long, is put on. The Mahomedan cultivators sometimes put on *tupis*. The female dress consists of a single piece of cloth about 14 feet long and called a *sari*. In case of a Mahomedan female the *sari* is generally a piece of thick and coarse country-made cloth, known as *jolha* cloth, being made by the *Jolhas*, *i.e.*, the Mahomedan weavers. Mahomedan and Christian females, as well as the women of the Namasudra class, sometimes put on jackets. A good deal of striped, country-made, coarse and thick cloths are used by the Mahomedan cultivators. On the other hand, the tendency of the Hindu females, both rich and poor, is towards wearing thin apparel :—

| | | Rs. | A. | Rs. | A. |
|---|---|---|---|---|---|
| (1) Hindu cultivators of average condition— | | | | | |
| (*a*) Every adult male member requires for one year ... | 4 *Dhutis* ... | 2 | 8 | | |
| | 2 *Gamchas* ... | 0 | 8 | | |
| | 1 Sheet ... | 0 | 8 | to 0 | 10 |
| | 1 Winter sheet ... | 0 | 12 | „ 1 | 8 |
| (*b*) Every female member ... ... ... | 5 to 6 *saris* ... | 4 | 0 | | |
| (*c*) Every child ... ... ... ... | 2 *Gamchas* ... | 0 | 8 | | |
| (2) Mahomedan cultivators— | | | | | |
| (*a*) Male ... ... ... ... | 4 *Dhutis* ... | 2 | 8 | | |
| | 1 Sheet ... | 0 | 8 | to 0 | 10 |
| | 2 *Gamchas* ... | 0 | 8 | | |
| | 1 *Tupi* ... | 0 | 1 | | |
| (*b*) Female ... ... ... ... | 4 Jolha-made *dhutis*. In winter Mahomedan women sometimes wear jackets. | 3 | 8 | | |
| (*c*) Children ... ... ... ... | 2 *Gamchas*. | | | | |

(3) Christian cultivators—

| | | Rs. A. | Rs. A. |
|---|---|---|---|
| (*a*) Male ... ... ... ... | 6 *Dhutis* ... | 3 0 | |
| | 1 Sheet ... | 0 8 | to 0 10 |
| | 2 *Gamchas* ... | 0 8 | |
| | 1 Winter cloth ... | 0 12 | to 1 8 |
| (*b*) Female ... ... ... ... | 3 Coarse jolha *saris.* | 2 4 | |
| | 1 *Sari* of a better quality for wearing during ceremonies. | 1 0 | to 1 4 |
| (*c*) Male child ... ... ... ... | 3 *Gamchas* ... | 0 12 | |
| | 1 Coarse sheet ... | 0 8 | or 0 9 |
| | 1 *Dhuti* ... | 0 8 | |
| | 1 Sheet ... | 0 8 | |

42. *Ornaments.*—The women of both Hindu and Mahomedan cultivators wear a good many ornaments. These are generally of the cheapest and rudest description. Ornaments made of glasses and of glass and porcelain beads are more worn by the Mahomedan and Christian females than Hindu women.

Ornaments worn by the Hindu and Mahomedan women and girls of the cultivating classes:—

| | Price. Rs. A. P. | | Rs A. P. | |
|---|---|---|---|---|
| Made of gold— | | | | |
| Nath ... ... | 4 0 0 | to | 15 0 0 | |
| Bolak ... ... | 5 0 0 | „ | 6 0 0 | |
| Shonala for neck ... | 2 8 0 | „ | 3 0 0 | |
| Made of silver— | | | | |
| Hasuli ... ... | 4 0 0 | „ | 25 0 0 | |
| Kharu ... ... | 4 0 0 | „ | 25 0 0 | |
| Bauti ... ... | 10 0 0 | „ | 20 0 0 | |
| Besak ... ... | 2 0 0 | „ | 5 0 0 | Mahomedans do not use these. |
| Bala ... ... | 4 0 0 | „ | 6 0 0 | |
| Path ... ... | 3 0 0 | „ | 4 0 0 | |
| Phool ... ... | 4 0 0 | „ | 5 0 0 | |
| Kata baju ... ... | 6 0 0 | „ | 8 0 0 | |
| Chub maduli ... | 1 8 0 | „ | 2 0 0 | |
| Chur ... ... | 10 0 0 | „ | 20 0 0 | Hindus do not use these. |
| Kankan ... ... | 4 0 0 | „ | 5 0 0 | |
| Made of shells, lac, glass, &c.— | | | | |
| Sanka ... ... | 2 0 0 | „ | 5 0 0 | Mahomedans do not use these. |
| Churi ... ... | 0 1 3 | „ | 0 6 0 | |

Ornaments worn by the Christian women and girls of the cultivating classes:—

| | Price. Rs. A. P. | | Rs. A. P. |
|---|---|---|---|
| Made of kansa— | | | |
| Khaisha ... ... | 0 4 0 | | |
| Made of brass— | | | |
| Bala ... ... | 0 0 1 | to | 0 1 6 |
| Kharu ... ... | 0 2 0 | „ | 0 2 6 |
| Khaisha ... ... | 0 4 0 | | |
| Made of copper— | | | |
| Rings ... ... | 0 0 3 | | |
| Made of silver— | | | |
| Ring ... ... | 5 0 0 | | |
| Maduli ... ... | 1 0 0 | | |
| Hashli ... ... | 3 0 0 | to | 12 0 0 |
| Phool ... ... | 0 3 0 | „ | 0 4 0 |
| Anti ... ... | 0 1 6 | „ | 0 2 0 |
| Madankari ... ... | 0 1 0 | „ | 0 4 0 |
| Chain ... ... | 1 0 0 | | |
| Bak kharu ... ... | 4 0 0 | to | 10 0 0 |
| Tar ... ... | 4 0 0 | „ | 8 0 0 |
| Made of glass— | | | |
| Churi, both blue and black | 0 2 0 | | |
| Made of porcelain beads— | | | |
| Hoyadu ... ... | 0 10 0 | | |
| Shalyamala ... ... | 0 1 0 | | |
| Jam ... ... | 0 1 6 | | |
| Lahar ... ... | 0 0 9 | | |
| Chelli ... ... | 0 2 0 | | |

43. *Men without fixed pursuits.*—The number of men in the Dacca district who follow no fixed pursuits, and therefore work as servants or day-labourers, is extremely limited. There is always a greater demand for labour than can be met by local supply, and wages are everywhere pretty high. As a consequence, an able-bodied labourer willing to work can easily earn quite as much as, if not more than, an average cultivator.

*Wages in different parts of the district.*

| | | |
|---|---|---|
| At Mirzapur | ... | 5 annas per diem. |
| At Kaligunge | ... | 3 annas and two meals=about 5 annas. |
| At Doopondee | ... | 3 annas and two meals for whole day, and 2 annas and one meal for up to noon. |
| At Satura | ... | 6 annas per diem; mostly engaged in binding bales of jute. |
| At Teota | ... | 4 annas per diem, or 2½ annas to 3 annas and two meals. |
| At Manikgunge | ... | 4 annas, and sometimes 4 annas and one meal per diem. |
| At Baghair | ... | 4 annas per diem. |
| At Rashakati | ... | 3 annas to 4 annas per diem. |
| At Patali | ... | 3 to 4 annas per diem. |
| At Taratîa | ... | 4 annas per diem. |
| At Lahajang | ... | 4 annas per diem. |
| At Gopalpur | ... | 2½ to 3 annas with food=about 5 annas per diem. |
| At Baruikhali | ... | 4 annas per diem with food. |
| At Hariskul | ... | 3 to 4 annas per diem. |

The following statement will give a clear idea of the condition of the purely labouring classes of the Dacca district as compared with that of the districts of the Patna and Bhagulpore Divisions:—

| Districts. | Areas in square miles. | Total population. | Population per square mile. | Number of adult male labourers. | The percentage the labourers form of the total population. | Daily wages. |
|---|---|---|---|---|---|---|
| Dacca ... ... | 2,797 | 2,116,350 | 756·65 | 22,190 | 1·04 | 4 annas. |
| Patna ... ... | 2,079 | 1,756,856 | 848·05 | 136,815 | 7·78 | 2½ ,, |
| Gya ... ... | 4,712 | 2,124,682 | 550·91 | 157,396 | 7·40 | 2 ,, |
| Shahabad ... ... | 4,305 | 1,964,909 | 450·15 | 142,783 | 7·26 | 2¾ ,, |
| Mozufferpore ... | 3,003 | 2,582,060 | 859·83 | 109,839 | 4·25 | 2 ,, |
| Durbhunga ... | 3,335 | 2,633,447 | 789·64 | 120,544 | 4·57 | 2 ,, |
| Sarun ... ... | 2,622 | 2,280,382 | 869·71 | 63,095 | 2·76 | 2 ,, |
| Chumparun ... | 3,531 | 1,721,608 | 487·57 | 86,358 | 5·01 | 2 ,, |
| Monghyr ... ... | 3,921 | 1,969,774 | 502·37 | 143,774 | 7·29 | 2 ,, |
| Bhagulpore ... | 4,268 | 1,966,158 | 460·67 | 122,601 | 6·23 | 2 ,, |
| Purneah ... ... | 4,956 | 1,848,687 | 373·02 | 130,960 | 7·08 | 2½ ,, |
| Maldah ... ... | 1,891 | 710,448 | 375·70 | 27,093 | 3·81 | 2½ ,, |
| Sonthal Pergunnahs ... | 5,456 | 1,568,093 | 287·41 | 52,883 | 3·37 | 2 ,, |

44. Of the artizan classes, the *Tantis* (Hindu weavers), the *Jolhas* (Mahomedan weavers) and the *Goalas* are in comparatively bad condition. The weavers have been ruined by the importation of English-made piece-goods, and many of them have been compelled to take to other professions, especially agriculture. The *Goalas*, or the milkmen class, have been put to difficulty by the contraction of the pasturage area, and the consequent decline in the trade in milk and its several preparations. Several cases of the *Goalas* having turned into silversmiths came to my notice.

45. Formerly much safflower was grown and manufactured into dyestuff in the Manikgunge subdivision and the Nawabgunge thana of the Sudder subdivision. This industry is now all but extinct, and in its place the cultivators of Manikgunge have taken to growing jute, and some relief has come to the poorer classes of Nawabgunge in the form of a new industry in cotton-cleaning. A good deal of the seed cotton brought to Naraingunge from Tipperah, Chittagong and other places is sent here for cleaning. A woman working during the moments that can be spared from household work can clean one maund of cotton in 10 to 12 days, for which she is paid 10 annas. She also retains the seed, about 23 seers in weight, which is a good cattle fodder, and worth not less than 5 annas.

46. *Education.*—Education is not much in favour with the cultivating classes, as they believe that it makes the boys lazy and unfit for the profession

of their forefathers. The following figures have been gleaned from the reports of Sub-Inspectors of Schools for 1886-87. Later figures are not available, as since the year 1887-88 the Sub-Inspectors are not required to furnish them. If these figures were collected, they would, I fear, have shown that instead of making any progress, education is getting more and more unpopular with the cultivating classes.

The number of boys and girls of the cultivating classes attending schools of different grades are:—

*Boys' Schools.*

| Subdivisions. | Number of students in high English schools. | Number of students in middle English schools. | Number of students in middle vernacular schools. | Number of students in upper primary schools. | Number of students in lower primary schools. | Number of students in training schools for masters. | Number of students in medical schools. | Number of students in Madrasa school. | Number of students in private schools. | Total number of students in all schools. | Total agricultural population. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sudder ... ... ... | 27 | 103 | 205 | 350 | 3,985 | 23 | 110 + 2 in homœopathic schools. | 5 | 2,995 | 7,705 | 1,232,990 |
| Naraingunge ... ... | 9 | 47 | 143 | 309 | 3,093 | ..... | ..... | ..... | 4,893 | 8,491 | |
| Moonshigunge ... ... | 42 | 69 | 209 | 356 | 3,017 | ..... | ..... | ..... | 2,314 | 6,006 | |
| Manikgunge ... .. | 9 | 35 | 115 | 211 | 1,998 | ..... | ..... | ..... | 1,592 | 3,960 | |
| Total ... | 87 | 254 | 672 | 1,226 | 12,093 | 23 | 13 | 5 | 11,792 | 26,161 | |

*Girls' Schools.*

| Subdivision. | Number of girls in upper primary schools. | Number of girls in lower primary schools. | Number of girls in middle vernacular schools. | |
|---|---|---|---|---|
| Sudder ... ... ... ... ... ... | 13 | 115 | ..... | 128 |
| Naraingunge ... ... ... ... ... | 17 | 85 | ..... | 102 |
| Moonshigunge ... ... ... ... ... ... | 71 | 101 | 5 | 177 |
| Manikgunge ... ... ... ... ... ... | 10 | 14 | ..... | 24 |
| Total ... | 111 | 315 | 5 | 431 |

47. *Movements of the people.*—On account of the general fertility of the soil, and the flourishing condition of the trade, and there being always a demand for labour in the district which is more than sufficient to provide employment for persons who have no fixed pursuit, very few persons leave the district in order to settle elsewhere. Temporary emigration from the district, however, is by no means small. When the census of 1882 was taken, no less than 105,760 persons, or 4·93 per cent. of the total population of Dacca, were found elsewhere in Bengal. These men very seldom go as ordinary labourers. I have not heard of a single case of a labourer of the district going to Assam or any other place as a cooly. The district sends boatmen, both Hindus and Mahomedans, up every river in Bengal, Behar and Assam. The book-binders of the Dacca district—all Mahomedans by religion—form a pretty large community in Calcutta. Men of the *bhadra lok* class, again, go to almost every part of India in search of employment, and many of the merchants of the district have firms in Calcutta, Serajgunge, Nalchiti, and other places, and the district owes its prosperity very largely to the wealth brought home by its merchants, as well as by the Government and private servants of various grades, some of whom occupy very respectable positions.

48. *Immigration.*—Men from Behar and Chota Nagpore come here to find work at the railways and mills and under the municipality, but of these very few settle here. Gangs of coolies from Behar, Beerbhoom and other places come here at the beginning of the winter and do earthwork, and return to their respective homes at the end of the season. Mention has already been made of the fact that the dearahs and churs of the Meghna have been mostly peopled by men coming from the Mymensingh, Tipperah and Noakholly districts. When the census of 1882 was taken, 77,113 immigrants were found in the Dacca district.

49. *Internal movements.*—Jungles and sparsely inhabited tracts, as well as new alluvial lands, are generally peopled by men—

(*a*) who come from over-populated parts of the country;

(*b*) who have lost their houses on account of these having been washed away by rivers;

(*c*) who seek an escape from the oppression of zemindars;
(*d*) who seek to defraud zemindars and money-lenders of the rents and sums of money due to them.

50. *General condition.*—There can be no doubt that a great improvement has taken place in the condition of the agricultural classes of the Dacca district during the last 20 years or so. They are now better fed, better clothed, and better housed, and have got more ready money in their pockets than was the case before, but still their condition is far from being satisfactory. The majority of them still live in mere huts, sleep almost on the bare earth, put on mere rags, and receive no education. They lead not only a hand-to-mouth living, but the majority of them are more or less involved in debt. If any reliance could be placed on a statement in which men of classes who are likely to be correctly informed on the subject agree, with the single exception of a few zemindars and their superior servants, the percentage of those who are free from debts will not amount to more than 25; and if the district be visited by a real famine, I think very few ryots will be able to tide over it unaided. Fortunately, however, as will be shown afterwards, the physical conditions of the district are such that the occurrence of a widespread and long-continued failure of crops here is not probable. As regards the cause of this general indebtedness of the cultivating classes, I do not think the extravagant habits of the people or their expending a few rupees more than what they should during marriages and other domestic ceremonies will fully account for this. My impression is rather that, taking one season with another, and considering the general low prices of the produce of the land, the profit ordinarily derived from agriculture is hardly sufficient to keep men engaged in this pursuit afloat, notwithstanding the most rigid economy, and it is only under especially favourable conditions, such as the neighbourhood of any large town or trading mart, an unlimited supply of available culturable land, an extended cultivation of any particularly paying crop, &c., that it is possible for the cultivators to lay by any money to fall back upon in season of scarcity and in time of need. The best-to-do ryots in the district are those who combine other industries with the cultivation of land, *e.g.*, the ryots on both sides of the river Banchera, who, whenever not occupied with the agricultural operations, carry on a trade in fuel, or the Mahomedan ryots near the city of Dacca, who are the great carriers of goods in the district, or those of the Namasudra cultivators, who all through the rainy season serve as boatmen. But the percentage of those who combine agriculture with other pursuits is limited, and I do not think their number will exceed 10 per cent. of the total agricultural population. The market gardeners near Rampal are the richest people among those who are purely cultivators of the soil. These men grow plantain, ginger, turmeric and sugarcane, but scarcely any paddy or jute. The condition of the sugarcane growers on both sides of the Dulai creek is also fairly good, but they are a mere handful of men. Much has been made of the money imported into the district from the sale of jute, but the benefits the cultivators have derived from the jute trade have, I fear, been much exaggerated. In the first place, of the jute that is annually exported from Naraingunge, only about one-third is grown in the Dacca district. Again, it is only when the cultivators are well-to-do and well-informed that they can take full advantage of a foreign trade like this by selling at the right moment and cultivating the right quantity of land; but the ordinary Bengal cultivators have neither the means nor the education to do this, and they are often cheated by the *beparis* or middlemen. The price of jute, moreover, is so fluctuating that the crop can hardly be depended upon. But I do not mean to deny that the improvement that has of late taken place in the condition of the cultivators of Eastern Bengal is chiefly due to the jute trade. But though their condition may not be all that can be desired, it would be positive exaggeration of facts to say that any considerable portion of the agricultural community live perpetually on insufficient food. From enquiries made in some hundreds of villages, I find that the number of men who live on insufficient food, that is, who have not enough to eat, would scarcely amount on the average to two per village. The results of a direct enquiry of this nature are, I think, more to be depended upon than inferences from any amount of statistical figures regarding the incomes of the

ryots. As regards quality, the food of at least 90 per cent. of the population of Bengal is not what it should be, and of this state of things the poverty of the people is far from being the only cause.

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## CHAPTER III.—AGRICULTURE.

51. *General conditions*—(*a*) *Climate.*—The climate of Dacca does not differ much from that of other districts in Lower Bengal. The year is divided between three seasons, namely, the winter, summer, and the rains, of which the last is marked by great peculiarities. The winter begins about the middle of Agrahayan (end of November) and lasts till Falgoon (middle of February). It is colder and of longer duration in the north than in the southern parts of the district, and this difference is not so much due to the difference of latitude, which is but slight, as to the great abundance of trees in the north, and to the presence of very large surfaces of water in the south. As in other parts of Bengal, the temperature is lowest in December, the mean of the maximum in this month being 78·21°F. and the mean of minimum 57·16°. The lowest temperature recorded in the winter is 50·4° and the highest 87·8°. Though the moderate cold of the winter is very pleasant, it is the most unhealthy season of the district. This is the time of the year when in many parts of the district malarious fever, and later on cholera, break out, owing probably to the putrefaction of vegetable matters that were submerged under water during the rains, and to the scarcity of proper drinking water in most places in the interior. As in other parts of Bengal, the winter is the driest time of the year, and the only rain that falls about this time is a shower or two in Magh, which greatly benefits the rubbi crops. "The wind in winter is from west, north, and north-west. It sets in from the former quarter, and as the cold weather advances, it veers round to the north, from which point it blows steadily for a few days, and then becomes variable, blowing some days from the north-west, and at other times from the south-east." The winter is not so severe as to do any injury to the crops by frost. The summer season lasts from Chaitra (middle of March) to Jyaistha (middle of June). The heat generally is milder than in many other places in Bengal, being moderated in the north by the woods, and in the south by the presence of large rivers. The temperature is highest in May. The mean of the maximum and minimum in this month for the last fifteen years are 91° and 75° respectively. The highest temperature recorded in summer is 99·3° and the lowest 65°. The temperature is also cooled down by the occasional rain that falls all through the summer, especially towards the end. The monsoon breaks out generally at the end of Baisakh (middle of May) or early in Jyaistha (end of May), and sometimes for days together storms of a more or less violent character blow almost every afternoon, attended with heavy showers. Hail generally falls in Chaitra, and sometimes does great injury to such crops as boro paddy, til, khirai, jute, &c. The monsoon storms generally blow from the south, veering round to east and then north-east. But it is in the rainy season that the whole district puts on a new and pleasant aspect. The district, as stated before, is intersected by numerous rivers and creeks, and on its east, south, and west flow the three largest rivers in Bengal. The waters of these rivers begin to rise in Baisakh (middle of April), and by the middle of Ashar (beginning of July) they become quite full. They then overflow the banks, and the whole district, with the exception of the high lands of the Madhupur jungle, is turned into one gigantic paddy-field, in which the villages stand like so many islands. Instead of a few artificial roads, the whole country becomes accessible by boats of all sizes. It is also at this season that numerous water-lilies and other aquatic flowers of all sizes, forms, and colours turn the low-lands and the edges of the jheels that abound in every part of the district into so many floating gardens, and later on the banks of rivers are fringed with lines of kash grass, so conspicuous with their long white racemes. The water begins to subside by the beginning of Aswin (middle of September), but the season is not over till heavy showers of rain, attended with high winds, or sometimes even storms, fall in Kartik (October—November). When the inundation water

recedes, it leaves in many places a layer of very fine silt, on which pulses and oilseeds are sown broadcast without any preparation whatever. The average rainfall recorded at Dacca in June, July and August are 10·47, 12·36, and 12 38 inches respectively.

52. *Meteorological stations.*—There are five meteorological stations in the district, namely, one in the sudder station, one in each of the three subdivisional towns, and the fifth at Joydebpur within the Madhupur jungle. The system would be completed by two more stations, namely, one at Roypura and another at Nawabgunge.

53. The rain on which the main crops of the district are most dependent is that which falls in the early months of Falgoon to Jeith. Later on, the whole district being inundated, the crops, excepting within the Madhupur jungle, and to some extent also on the high banks of rivers, depend chiefly on the rise of waters and not on the local rainfall. "If there is early rain to allow the crops to be sown and to get a good headway before the rivers rise, and if the rivers rise gradually and not too soon or too suddenly, the total amount of the rainfall of the district is not very material." The early rain is needed for sowing in time the long-stemmed aman paddy that is generally grown on the edges of jheels, as well as the aus paddy and jute sown on river banks and churs.

54. *Soils.*—From the point of view of its composition and origin, the soil of the district may be divided into three classes, namely, (*a*) the red clay of the Madhupur jungle, (*b*) the ordinary jheel clay, and (*c*) the recent alluvion :—

(*a*) The red clay of the Madhupur jungle is a stiff clay, containing an excess of iron and lime, but deficient in silicious matter. From its great resemblance to laterite clay it seems as if a bed of this clay were washed away by rivers and streams and deposited afterwards without being much mixed up with the silt of any other origin. When mixed with water it becomes sticky, but not nearly to such an extent as the ordinary stiff clay, and when dry becomes as hard as stone. The surface soil, both in high places and on low grounds, has been much altered by being mixed up in the one case with vegetable mould, and in the other with the washings from higher grounds, as well as in some places with river silt. The surface soil is exceedingly porous, and during the rainy season water percolates to a great depth. The soil below four or five feet is compact and streaked with white spots. The soil, though difficult to work, and not very well suited to cold weather crops, is exceedingly fertile, and the rain crops, such as sugarcane, jute, cotton, &c., thrive on it most luxuriantly.

(*b*) The jheel clay is a stiff clay, deposited on the bottom and edges of the jheels. It is most common in the southern and western parts of the district, which is supposed to have been formerly occupied by the main channel of the Ganges. In some places the character of the soil has been much modified by being mixed up with the half-decayed aquatic vegetation so abundant in the jheels. The only crops that are grown on this land are the long-stemmed paddy, and in favourable spots also *khesari* and *matar*. The land is exceedingly difficult to prepare. On ploughing, especially if this is done when the ground is wet, large clods are brought to the surface, which no amount of ploughing is able to bring to tilth. On such lands early in Chaitra hundreds of cultivators may be seen with *matlahs** on their head and the *intamugar* on their hands laboriously hammering the clods into smaller pieces.

(*c*) The recent alluvial soil formed by the silt brought down by the Meghna, the Brahmaputra, the Ganges, and their numerous branches, is either sand or sandy loam. That formed by the Meghna with a sluggish stream has a much finer texture, is richer in vegetable matter, and more retentive of moisture. The dearah lands of the Ganges and the Jenai contain coarser sand and less of organic matter, and are not nearly so fertile as the churs of the Meghna.

* A sort of small umbrella made of banian and other leaves.

55. There are not many local names used to distinguish the different varieties of soil to be met with in the district, and the few that are in use are indicative of the position of the locality, its altitude with reference to the inundation level, and its suitability to grow any particular crop, and not of the characters, either chemical or physical, of the soil :—

| | |
|---|---|
| (1) *Bhiti* land ... | High land on which houses are built. |
| (2) *Nal* land ... | Arable land and culturable waste land. |
| (*a*) *Barsar* ... | Low land on which *aman* paddy only can be grown. |
| (*b*) *Khama* ... | Not so low as (*a*), on which the variety of paddy known as khama is grown. |
| (*c*) *Tati* ... | Where two to two and a half cubits of water accumulates during the rains, and on which the varieties of paddy known as aswini, kiran, and bajal are grown. |
| (*d*) *Shali* land ... | Slopes of high land on which transplanted paddy or *roaicha dhan* is grown. |
| (3) *Aus* land ... | (*a*) *Rowa*. Land higher than the preceding, on which *aus* paddy is sometimes transplanted. The soil is rather clayey.<br>(*b*) *Buna*—High river banks, containing sandy soil, on which *aus* paddy is sown broadcast. |
| (4) *Boro* land ... | (*a*) Edges of jheels or banks of hilly streams in the Madhupur jungle on which *boro* paddy is transplanted.<br>(*b*) Edges of tidal rivers on which *boro* paddy is transplanted.<br>(*c*) *Lepi*—Portions of churs containing soft, clayey silt on which the lepi system of growing paddy is adopted. |

56. *The field crops of the district.*—The following is a list of the principal crops grown in the district with their botanical names, and the area occupied by each. The figures as regards the total area under cultivation and the areas occupied by the different crops are not the results of actual measurements, and have therefore no pretension to accuracy. They are only such as I have been able to guess from an intimate knowledge of the different parts of the district, aided by the help derived from intelligent cultivators and servants of zemindars. It will be seen that the total area stated to be under cultivation here is about 80 square miles less than what is to be found in the Crop Statements furnished by the Collector and periodically published from the office of the Director of Land Records and Agriculture, Bengal. I think the area under cultivation has been somewhat over-estimated in the Crop Statements, especially as regards the sudder and the Naraingunge subdivisions, a considerable portion of each of which is included within the Madhupur jungle and is uncultivated. Unless and until the district has been cadastrally surveyed, it will of course not be possible to state with accuracy what portion of it is under cultivation, but I think we have the means available by which the figures can be to some extent checked. The Census Report of 1882 gives the total agricultural population of Dacca as 1,232,990. From the same report also we know that each household in the district consists of on the average 6·86 persons. By dividing one by the other, we find the number of households of cultivators to be 179,736. Elsewhere I have given 15 bighas as the average size of the holding of each of cultivator in the Dacca district. Assuming these figures, and after making the necessary calculation, we find the cultivated area owned by the agricultural classes to be 1,392 square miles. To this we must add about 50 square miles, being the area under cultivation passed by zemindars and others not included in the agricultural classes. The total cultivated area in the Dacca district is therefore about 1,442 square miles, or 51·55 per cent. of the total area.

56*a*. *Division of the Land.*—The 2,797 square miles of land comprised in the district may be roughly classified thus :—

| | Sq. miles. |
|---|---|
| Area under cultivation ... ... ... ... | 1,442 |
| Do. occupied by houses and gardens ... ... ... | 300 |
| Do. occupied by roads, paths ... ... ... | 100 |
| Do. under water ... ... ... ... | 200 |
| Do. available for cultivation ... ... ... | 500 |
| Waste land ... ... ... ... ... | 250 |

57. A list of the field crops of the Dacca district :—

| Vernacular names. | Scientific names. | Area occupied by each. | The parts of the district where most largely grown. |
|---|---|---|---|
| | | Sq. miles. | |
| 1 Aman dhan ... / Aus „ ... / Boro „ ... | Oryza sativa ... | 1,000 | Will be stated under paddy. |
| 2. Sugarcane ... | Saccharum officinarum ... | 2 | Near Dacca and Mirpur, on the banks of the Lakhya and Brahmaputra at Rampal and Deobhog. |
| 3. Wheat ... | Triticum æstivum ... | (1) | Near Patharghata, Rowile, and Teota. |
| 4. Barley ... | Hordeum hexastichon ... | (10) | All over the district, excepting Madhupur area. |
| 5. Cheena ... | Panicum miliaceum ... | 7 | Nawabgunge police station. |
| 6. Kaon ... | Do. italicum .. | (2) | North Manikgunge. |
| 7. Ulu ... | Saccharum cylindricum (cultivated). | 20 | On the banks of the Brahmaputra. |
| 8. Lataghas ... | Saccharum ... | 5 | Churs of the Meghna. |
| 9. Onions ... | Allium cepa ... | 2 | On the Ichhamati in the Nawabgunge police station. |
| 10. Garlic ... | Do. sativa ... | 1 | Ditto ditto. |
| 11. Kachu ... | Colocasia antiquorum ... | 1 | Vikrampur. |
| 12. Plantain ... | Musa paradisiaca ... | 6 | Rampal. |
| 13. Ginger ... | Zingiber officinalis ... | (3) | Do. |
| 14. Turmeric ... | Curcuma longa ... | (3) | Do. |
| 15. Til ... | Sesamum orientale ... | (10) | Manikgunge and Moonshigunge. |
| 16. Potatoes ... | Solanum tuberosum ... | (·05) | Bhawal, Kalatia, Atti, and Rohitpur villages. |
| 17. Brinjal ... | Do. melongena ... | 3 | Bochilla, Atti, and Bahtabuli. |
| 18. Chillies ... | Capsicum frutescens ... | (5) | On the banks of the Meghna and Lakhya. |
| 19. Tobacco ... | Nicotiana tabacum ... | (3) | Ditto ditto. |
| 20. Sakarkanda ... | Convolvulus batatus ... | 7 | Dearahs of the Brahmaputra and Meghna. |
| 21. Safflower ... | Carthamus tinctorius ... | (2) | Near Patharghata on the Ichhamati. |
| 22. Gimi kumra ... | Cucurbita ... | ·05 | Vikrampur and near Teota. |
| 23. Tarmuj ... | Cucurbita citrullus ... | ·05 | Jabuna and Padma churs. |
| 24. Uchhe ... | Momordica muricate ... | 2 | On the churs of the lower course of the Dhaleswari |
| 25. Kawla ... | Luffa amara ... | | Bhawal pergunnah. |
| 26. Phuti ... | Cucumis momordica ... | 1 | On the churs of the lower course of the Dhaleswari. |
| 27. Khirai ... | Cucurbita ... | 1 | |
| 28. Peas ... | Pisum sativum ... | (200) 100 | The low land to the north-west of Sabhar. |
| 29. Khesari ... | Lathyrus sativus ... | | Vikrampur and Nawabgunge police station. |
| 30. Muskalai ... | Phaseolus Roxburghii ... | | The dearahs of the Dhaleswari and Meghna. |
| 31. Moong ... | Do. moong ... | | Manikgunge. |
| 32. Dhainche ... | Aeschynomene cannabina | 6 | Dearahs of the Dhaleswari. |
| 33. Sunn ... | Crotolaria juncea ... | 4 | On the banks of the Lakhya. |
| 34. Jute ... | Corchorus capsularis ... | 250 | Will be stated under jute in paragraph 117. |
| 35. Cotton ... | Gossypium herbaceum ... | Insignificant | In Rampal and near Kapasia. |
| 36. Mustard ... | Brassica nigra (Sinapis nigra). | (50) | All over the district. |
| 37. Radishes ... | Raphanus sativus ... | 2 | Rajnagar on the Ichhamati. |
| 38. Kalijeera ... | Nigella Indica ... | Insignificant | Near Dacca. |

58. *Manure.*—The cultivators of the Dacca district make very little use of manures, whether artificial or the farm yard. It must, however, be admitted that the extent of land on which, on account of its renewal annually by a deposit of silt during the rains, no manure is wanted, or where the land being washed away every year, manure if applied would not be of much use, is far greater here than in many other districts of Bengal or Behar. But instances are not at all wanting of manure easily available being wasted even in places where its use is certain to be attended with good results. I have seen heaps of dung of cattle fed on rich food being thrown into water to be washed away.

Paddy-fields are seldom manured in the Dacca district, and jute, sugarcane, plantain, radishes, and potato are almost the only crops that receive any manure.

The manures that are more or less used are (1) dung, (2) dung-ashes, (3) mustard cake, and (4) mud taken from the bed of khals and old ponds. Dung is applied to jute, radishes, potatoes, and sugarcane. The quantity used, except in case of potatoes and radishes, is almost ridiculously small. It is always applied in a well rotten state, and often in the form of a compost. Dung-ashes

are never used alone, but always thrown into the dung heaps. Mustard cake is applied to sugarcane, but always in insufficient quantity. Mud is used in sugarcane and plantain fields in quantities sufficient for the requirements of the crops, but this manure is in regular use only in two places in the district, namely, in Rampal in the Moonshigunge subdivision, and on the banks of the Dulai creek, near the city of Dacca.

59. *Irrigation.*—The crops are not generally irrigated here, nor can it be said that irrigation is much needed, for all the alluvial lands of the district retain sufficient moisture for the proper growth of plants at all times of the year, unless it be a year of unusual drought. The only crops that are more or less irrigated are the boro paddy when grown on the edges of jheels, or at such a height on the banks of rivers that the tidal water cannot reach it; and sugarcane grown as a garden crop in the suburbs of Dacca. The implements of irrigation for the boro fields are the donga and the swing basket. The garden crops are watered by the *ghara* (an earthen water-pot).

60. *Implements.*—The implements used in agricultural operations are few in number and extremely simple in their construction, but fairly efficient.

(1) *Ploughs.*—Two different forms of ploughs are in use in the Dacca district. The one used in the churs of the Meghna is exactly the same as the Tipperah and the Noakholly plough. That this is so is as much owing to the soil in these river islands being of the same origin and character as that of the whole of the western parts of the Tipperah and Noakholly districts as to the fact that these recent alluvial formations have mostly been peopled by men coming from those districts. The body of this plough is in the form of a double pyramid, joined at the base at an angle, one end of which is tipped with a little bit of iron to serve as a share and the other joined to a handle. To render this already-light plough lighter still, a portion of the wood is cut off from behind the breast of the plough. The breast of the plough is triangular in form and splits the furrow slice as it rises, and in this respect has an advantage over the form in use in most parts of the Burdwan Division. The *ish* or the pole and the yoke do not differ from those in use in other districts. The plough is so light that a man can easily carry the whole structure—the plough, the *ish*, and the yoke, all complete together, with a hubble-bubble fixed on a rather heavy stand made of earth. The plough in use in the rest of the district is the simplest form of plough imaginable. It consists of a single piece of wood, from where the share is fixed to the handle. The breast of the plough is rounded, and in this respect it is inferior to the plough described above.

(2) The *mayi* or *changa* is an instrument made of two pieces of bamboos about six feet in length, which are joined together by some cross bars like a ladder. It is yoked to two oxen, and the driver stands on it to give weight. It is used (*a*) to cover the seed, (*b*) to smooth the field, (*c*) to press the ground, (*d*) to gather the weed, and (*e*) to break the clods. Another form of *changa*, called the *lepi changa*, is used in plastering the earth in the cultivation of boro paddy. It consists of two flat pieces of wood joined by cross bars.

(3) The *anchra* or *bida* is a rake, and consists of a plank of wood with one row of teeth, which are generally made of bamboos. It is drawn by a pair of oxen, and is used in (*a*) loosening the soil, and in (*b*) thinning a crop.

(4) The *intamugar* or the *clod-crusher* is a piece of wood about a foot and a half long with a large handle, generally made of bamboo, and is used in clay lands to break up the large clods that are raised when such lands are ploughed, especially if this be done in a wet condition.

(5) The *kachi*, *kaste* or reaping hook is made of iron with a wooden handle.

(6) The *pashuni* or the weeding iron is of various forms and an effective, neat and little instrument.

(7) The sort of *kodali* used here is almost the same as an English hoe. Near Dacca, however, the ordinary bent hoe with a short handle is in use.

(8), The *kural* or hatchet, (9), *khanta* or a large chisel-shaped instrument, (10) *dao* or bill, are to be met with almost in every house.

61. *The working animals.*—Buffaloes were at one time much in use in the cultivation of land, but these have almost altogether disappeared from the country, owing, no doubt, to the silting up of the jheels and the contraction of the pasture land. The plough, the ladder, and the rake are now drawn

exclusively by bullocks. These are mostly very wretched animals, much inferior to the oxen of Western Bengal. The deterioration of the cattle is principally to be ascribed to the two following causes, namely—(1) a total neglect in breeding, allowing animals of both sexes of all ages and condition to graze together without any restriction whatever; (2) the food that these poor animals pick up is very insufficient in quantity, and poor in quality. The animals towards the north are a little better. There are some very fine bullocks to be seen here and there, especially in the churs of the Meghna. These have been imported from up-country, and as a rule belong to the Mahomedan cultivators. It is strange that the Hindus, with all their boasted veneration for the oxen, take far less care in tending and feeding them than their Mahomedan neighbours.

62. *Agricultural labourers.*—Very little hired labour is used, and few servants are kept, and as a rule the ryots cultivate their own fields. This is so because wages throughout the district are very high, and servants are difficult to obtain, the number of the landless class being very limited. Hired labour is used only occasionally, as when weeding the aus paddy and jute or harvesting the crops, and even this is often done on the *ganta* or co-operative system. The men hired for work are generally people living in the same village, or in the neighbourhood; but in the north and north-east of the district, men from the western part of the district, or even from other districts come for work at the time of the paddy harvest. These men are paid by a portion of the paddy harvested, their share varying between 8 and 10 per cent. of the produce gathered.

63. *Fodder-supply.*—Fodder was at one time very abundant throughout the district, the greater portion of which was under jungle and long grass. As might be expected under these circumstances, the district was well stocked with cattle, especially with milk cows and buffaloes. Close to every jheel the *Goalas* or milkmen had their *bathans* or places where large heads of milch cows and buffaloes were kept.

The district gets its fodder-supply from the following sources:—

(1) The *jhara* or wild paddy and *dalghas* growing in the jheels of Bhawal, Airal, Jamsha, Chowhat, &c.

(2) The long grasses of the Saccharum species that grow on the banks and churs of the Padma, Jenai, Meghna and the Dhaleswari. Some Lataghas and one or two other grasses are also cultivated in the churs of the Meghna.

(3) Straw of paddy, especially of the variety known as aus dhan.

(1) The jheels mentioned above have, since the shifting of the course of the Brahmaputra to the west of the district, been a good deal silted up, some of them having been turned into regular paddy-fields. This has especially been the case with such of them as are supposed to be the relics of the old bed of the Ganges. Those within the area of the Madhupur jungle are now the only jheels that provide a good supply of fodder, but even here the quantity is rapidly decreasing. The filling up of the jheels and lowlands that were at one time so abundant all over Lower Bengal, from the foot of the Himalaya to the sea and from the Ranigunge hills to the hills of Tipperah and Chittagong, is the great cause of the scarcity of cattle-food, and consequently of the various products of the dairy. To say that the scarcity of milk and other dairy produce is due to the eating of beef by the Mahomedan and the Christian population is to ignore the real cause of the calamity, and to make a statement that is not founded on facts. It is not the reduction in the number of cattle that is to be regretted, for we have still more cattle than we know how to provide food for them. I have shown elsewhere that the number of the cattle per square mile in Bengal is greater than that of England.

(2) The supply under this head has somewhat extended, partly from the increase of late of new alluvial formations, especially in the western part of the district, and partly from the extension of the cultivation of *lataghas*. But this supply, even under the most favourable conditions, is extremely limited and quite insufficient to make up for the decrease under (1).

(3) The supply of fodder under this head has somewhat decreased, and is likely to decrease still further. This decrease is due to the extension of the cultivation of jute, which is grown on land that formerly produced *aus* paddy.

64. *Fuel-supply.*—The fuel-supply of the district has also decreased, and the price of fuel has been very rapidly rising. The district gets its supply of fuel from the following sources, namely:—

1. The Madhupur jungle.
2. The Chandpur jungle (in the Tipperah district).
3. The *Tamarix Indica* or jhau and reeds growing on the dearahs.
4. Fruit trees and other trees, as well as bamboos, grown in every locality.
5. The hijal trees (*Barîngtonia accutangula*) growing on lowlands and on the edges of jheels.
6. Dung cake.
7. Straw.

There has been a slight decrease under the head (1). In consequence of the clearing of the Chandpur jungle, there has been a great scarcity of fuel in the Moonshigunge subdivision, especially in the eastern part of it. The supply under the fifth head has diminished from the same cause which has so much reduced the fodder-supply of the district. The supply under all other heads remains very much the same as before, except that jute straw has been substituted for the straw of safflower, which has nearly gone out of cultivation.

## CULTIVATION OF CROPS.

65. *Paddy.*—Paddy is by far the most important crop of the district. There are very large areas throughout the district that grow nothing but paddy.

The paddy grown in the Dacca district is not nearly so fine as that grown in Burdwan and Hooghly, or in the neighbouring districts of Mymensingh, Sylhet, Tipperah, and Backergunge. Fully one-third of the whole produce belongs to the two lower classes of paddy known as *aus* and *boro*, and even the *aman* paddy grown here, especially the long-stemmed variety, is a coarse and inferior grain. The following table contains the names of the principal varieties of paddy grown in the district, together with some information as regards the localities in which they are principally grown, the soil most suited to, and the probable area occupied by, each :—

| Name of the class. | Principal varieties. | Part of the district where most grown. | Soil most suitable. | Areas occupied. |
|---|---|---|---|---|
| I. Aman ... | (*a*) Long-stemmed—<br>(1) Rayenda.<br>(2) Baoa.<br>(3) Khama.<br>(4) Ordinary. | Airal jheel, Jamsha chak, Jaypura chak, Saldaha, Pubal jheel, Lavandaha, jheels formed by the old bed of Brahmaputra, Parjoar jheel, Shampur chak. | Stiff clay on which six or seven feet of water accumulates during the rains. | 666 square miles. |
| | (*b*) Transplanted or *rowa*—<br>(1) Shal<br>(2) Ordinary *rowa*. | Slopes of the Madhupur jungle, high banks of Arialkhan river and Brahmaputra river (a little). | High, stiff clay on which about a foot of water accumulates during the rains. | |
| II. Aus ... | (*a*) Ordinary—<br>(1) Bheslan.<br>(2) Boaila.<br>(3) Shaita.<br>(4) Surajmani, &c , &c. | High banks of the Meghna, the Padma, the Jenai, and the Dhaleswari, high lands of the Madhupur jungle. | High, sandy loam | 184 square miles. |
| | (*b*) Lepi—<br>(1) Shaita. | On some of the churs of the Padma... | New clay ... | |
| III. Boro .. | (*a*) Ordinary ... | In Roypura police station and other places on the edges of the Meghna, Mirpur, Kaliakur. | Humous soil ... | 150 square miles. |
| | (*b*) Lepi ... ... | Kaliarkur, churs of the Padma ... | New clay ... | |

66. *Long stemmed paddy.*—This variety of paddy is extensively grown in the Dacca district. The low lands, the sides of the jheels, and low plains on which from 5 to 15 feet of water accumulates during the rains are selected for this crop. It has a remarkable power of growth, frequently shooting up to the extent of 12 inches in the course of 24 hours as the inundation rises, and in the case of some varieties, such as rayenda and baoa, attaining a length of from 10 to 20 feet. The greatest dangers to which it can be exposed during the season of inundation are a high and sudden rise of rivers, by which it is overtopped, and a strong current of water, by which whole fields are sometimes uprooted and carried away to long distances.

*Soil.*—The soil most suited to this variety of paddy is the stiff clay described in paragraph 54.

*Mode of cultivation.*—It has been stated above that the plants sometimes attain a length of even 20 feet. During the harvest, however, the whole plant is not cut off, but only the ears with about one and a half feet of the straw are removed. The lower portion of the straw remains, and is locally known as *nara.* It is too coarse to be used as fodder even by the cultivators, who are far from being over particular as regards the quality of the food given to their cattle. It is sometimes used as a fuel, but in most places it is gathered in heaps in the field and set fire to. The land is immediately after ploughed. This is generally done in December. It is then ploughed once or twice again and left exposed to the sun and rain till Chaitra, when the large clods, of which the field is probably very full, are patiently broken down by the *intamugar*, and a somewhat rough tilth obtained. Advantage is now taken of a shower of rain to give the field one or two ploughings and harrowings more when the field is ready for sowing. This is generally done at the beginning of Baisakh. About 15 seers of paddy is broadcasted over a bigha of land.

In the most low-lying places, where water begins to accumulate early in Baisakh, the sowing cannot be so long delayed. The varieties of the long-stemmed paddy grown in such places are the rayenda and baoa, and these are sown at the end of Magh or early in Falgoon. The harvest time is the same as that for other varieties of aman paddy, namely, Aghan-Pous, so that these varieties of paddy remain in the field for ten months in the year.

The seeds germinate in four or five days, when the field is rolled twice with the ladder. After the plants have attained a height of 4 to 5 inches, the soil is loosened by the rake, which also serves to thin the crop. After this the only operation to be done till the harvest time comes is a weeding. In some places even this weeding is done away with. The crop is ready for the harvest in Aghan. The yield per bigha varies between 3 to 12 maunds. The average will be about four and a half maunds.

67. *Aman and aus mixed together.*—In many places in the district it is customary to sow aman and aus together in the same field. The advantage of this system is that if one of the crops fail, the ryot can rely on the other. In an unusually favourable year, even two full crops may this way be obtained from the same field in a single season, but generally a half crop of paddy and a 12-anna crop of aman are got this way.

*Tillage.*—The straw of the previous year's crop is collected in heaps and burnt, and the field is ploughed. If the ground is sufficiently dry, the plough is followed by the ladder, otherwise a ploughing only is given. This is generally done in Magh. After an interval of two to ten days the field is cross-ploughed, and the ladder is used twice. After three or four ploughings more have been given the land becomes ready for sowing, which is generally done in Chaitra. Twelve seers of aus are mixed with 6 seers of aman and sown broadcast over a bigha of land. The sowing is preceded by a ploughing, and followed by a ploughing and two rollings with the ladder. The seeds germinate in two to three days, when the field is once ploughed and twice rolled with the ladder. This process is technically termed *ubhani.* After about five or six days, the ladder is again used with the object of crushing the clods, or more properly shaking them a little, so that the seedlings below them may have an opportunity of coming out. This operation is termed *batar.* The interval between the *ubhani* and *batar* is longer when the field is dry, for in such a field the shoots are longer in appearing when the seedlings come above the clods and the field looks green, the

ladder is used once more, and this operation is termed *jaoai*, and it is done with the object of thinning the crops, as well as by somewhat checking the upward growth, of making the plants stronger at the bottom. The *jaoai* is followed by a harrowing with the rake. After about six days the field is weeded. A second weeding is sometimes given in about a fortnight.

The *aus* is reaped in Ashar.

During the rains, when the *jhara* paddy makes its appearance, this is pushed below the water with the aid of a piece of bamboo, so as to make it rot there, for otherwise the whole field would be choked up. This process is termed *dagao*.

*N.B.*—When the same variety of paddy is sown successively more than two years on the same field, it degenerates into a wild paddy, which has the peculiarity of shedding the grain on the slightest touch, and hence it is known as *jhara*. The *jhara* paddy can hardly be distinguished from the wild paddy growing in the jheels of the Madhupur jungle.

*Diseases.*—There are several kinds of insects that do considerable injury to the paddy crop. One of them, known as *panari*, eats away the green leaves of the plant. Another black insect attacks the crop when the ears are just forming, and hundreds of fields are sometimes lost this way. The pest generally shows itself when no rain falls for days together in Kartik. Storms in the month of Kartik also prove injurious to the crop.

*Harvest.*—The aman is harvested as usual in Aghan.

68. *Mixed aman and til.*—In some parts of the Moonshigunge subdivision the aman paddy and til are sometimes sown together.

*Tillage.*—The tillage is the same as that described above.

*Sowing.*—One and a half seers of til and 10 seers of aman paddy are mixed together and sown broadcast over a bigha of land. The sowing time extends from the middle of Falgoon to the end of Chaitra. When the plants grow 4 to 5 inches high the field is hoed by a small *kodali*. At the time of the hoeing the plants are thinned, if they come too thickly. Eight or ten days after the first weeding is given. The second weeding comes in about a fortnight.

The til is cut in Jeith. After reaping the til is kept in heaps for a few days, and then threshed out by a little beating with the stick. Yield—2 to 3 maunds per bigha.

69. *Aman paddy, aus paddy, and til sown together.*—In some parts of the Manikgunge subdivision these three crops are often sown together in the same field. The tillage operation is the same as that described before. At the end of Chaitra, after a shower of rain, the field previously prepared is ploughed once more and broadcasted with 1½ seers of *til*, 10 seers of aus, and 6 seers of *aman* paddy. The seeds are well mixed together in a basket before sowing. When the plants appear, the field is first rolled with the ladder, then harrowed with the rake, and lastly two weedings are given at an interval of two to three weeks.

The *til* is reaped in Jeith, the aus paddy in Ashar, and the aman in Aghan. Sometimes very good crops are obtained this way, and this system of mixed cultivation is gaining favour with the cultivators.

70. *Transplanted aman.*—The transplanted paddy is grown in the district in two different classes of land, namely, in the upper reaches of the valleys of the Madhupur jungle and in the comparatively high and old dearahs of the Brahmaputra and its branches. The paddy grown in the Madhupur valleys is a special variety, and is known under the name of *shaldan;* the transplanted paddy of other places goes by the general name of *rowa* or transplanted.

The mode of cultivation followed here does not materially differ from that prevalent in West Burdwan; only it is somewhat simpler.

*Nursery.*—Seedlings are prepared in a nursery, for which a plot of suitable land is selected, either close to the ryot's homestead or in a corner of the field to be afterwards transplanted. It is ploughed four or five times in Baisakh, and in Jeith, as soon as a little rain-water has collected on it, the *lepichanga* is passed over it several times, so as to have the ground regularly plastered. While the preparation of the nursery land is going on, the necessary quantity of seed (6 seers for every bigha of land to be transplanted with) is weighed and soaked in an earthen pot for 24 hours. It is then drained and kept in a corner of

the house covered with mats, leaves, &c., and weighted. The seed begins to germinate in two to three days, when it is sown broadcast so thickly that the grains somewhat overlap one another. The seed is not covered with the earth. When the seedlings are from a foot to 18 inches high they are fit for transplantation.

*Tillage.*—In case of the jungle valleys, the first thing to attend to is to repair the embankments thrown across the valleys for collecting water. The field is prepared by ploughing it in the mud for two or three times. The seedlings are then transplanted about half a cubit apart either way, putting in three to four plants in the same place. The transplantation is generally done about the 15th of Sravan.

The paddy is generally harvested in Aghan. It is better to do this as early as possible, for otherwise great damage is sometimes done by boars, monkeys, and other wild animals.

In the case of the dearah land about two ploughings are given in the dry field. This is done as soon as the previous crop, generally *khesari*, is off the ground. On such lands two rain crops are sometimes grown in the same field in the same season. As early as possible the field is sown with *jute* or *aus paddy*, generally of the *shaita* variety. The jute or the paddy is harvested early in Sravan, and then the field is immediately ploughed two to three times and transplanted with the aman paddy. The aman under such treatment seldom yields a full crop.

71. *The aus paddy.*—Of the several varieties of aus paddy under cultivation here, the *boaila* and *shaita* stand sandy soil best, and the *shaita* has the additional advantage of taking only sixty days (whence its name, *shat* or sixty) to ripen from the time of putting in the seed. This class of paddy is grown (1) on the high grounds of the Madhupur jungle, where sufficient water cannot be collected for the cultivation of the *shal* paddy; and (2) on the comparatively high and sandy dearah lands. The *aus* paddy cannot be grown on lands on which more than two feet of water accumulates during the early part of the rains, for it grows to a length of three to three and a half feet only, and does not rise with the rise of water, as is the case with the long-stemmed paddy. The land that grows *aus* paddy is also considered the best for the jute crops, and therefore with the increase of the cultivation of jute, the area under *aus* paddy is rapidly diminishing. This is somewhat to be regretted, for this variety of paddy not only supplies the ryot with a food-grain, but provides his cattle with an excellent fodder.

*Tillage.*—The land on which *aus* paddy grows is light and easily workable. It generally bears two crops in the year—the aus paddy or jute during the rains, and one of the pulses or mustard during the cold weather. As soon as the rubbi crop is off the field, it is ploughed and harrowed repeatedly to get the land ready for the aus paddy as rapidly as possible. The preparation must be hastened, especially on the chur land, for here a late crop is sure to be lost by the rise of the rivers. On such lands the cultivator is sometimes obliged to make a green fodder of his aus crop, and in some years the rivers rise so quickly that even the fodder is lost. The sowing time therefore is different in different localities. In the churs of Meghna it is sometimes sown so early as the end of Magh. In the high-lands of North Manikgunge, again, the sowing is often delayed till the beginning of Baisakh.

*After-treatment.*—As soon as the plants have come out, the field is rolled with the ladder. After about a week, when the plants have grown to a height of 5 or 6 inches, the field is harrowed with the rake preliminary to the first weeding. The tines of the harrow will root out a good many weeds and somewhat thin out the crop. The most troublesome and laborious operation required to be done in an aus field is the weeding. In doing this the ryots mutually help each other, and hired labour is also often resorted to in order not to lose time.

The harvest time extends from the end of Ashar to the beginning of Bhadra.

72. *Boro paddy.*—This class of paddy is of far greater importance here than in West Bengal. The places in the Dacca district where it is most extensively grown are—(1) the sides of the jheels and streams of the Madhupur jungle; (2) the churs and edges of the Meghna, and its numerous branches

and creeks subjected to strong tides; (3) and in some of the churs of the Padma.

*Soil.*—The soil best suited to the boro paddy is a mixture of clay and decayed vegetable matter or humous soil, and this is the nature of the soil on which it is grown within the Madhupur area. On the dearahs of the Meghna, which is the greatest boro tract in the district, the soil is a fine sandy loam, rich in organic matter, and always kept moist by being flooded at every tide. This class of paddy is generally transplanted, but there are one or two varieties of it that are sown broadcast and known as *lepidhan.*

As soon as the rains are over, a plot of ground from which the inundation water has just receded is chosen for the nursery. The *kalmi* creeper and other aquatic grasses are removed, and the place is worked into a soft mud by treading on it. If a piece of sufficiently soft ground cannot be had, the land chosen for the nursery is ploughed three to five times, and then plastered by passing the *lepichanga* over it two or three times. When the nursery ground is being thus prepared, the seed is put in an earthen pot and soaked for 24 hours: it is then drained and kept under cover till the germination begins. The seed is now sown broadcast on the nursery so thickly that the grains touch one another and even overlap. The seed is not covered, and has therefore to be carefully watched to see that no injury is done to it by birds and other animals. The plant comes out in five or six days. Thirty seers of paddy sown on one-fourth bigha of land gives seedlings sufficient for transplanting 2 bighas. If the natural moisture in the nursery prove insufficient, as sometimes happen, the ground should be artificially watered. The seedlings are fit for transplantation as soon as they have grown to a height of about 9 inches, but seedlings intended for the dearahs of the Meghna subjected to strong tides are not removed till they have attained a length of from 14 to 18 inches. The usual time for putting in seed on the nursery is the first week of Kartik, and that for transplanting is Pous.

No tillage is generally needed for the boro land. All that is usually done is to transplant the seedlings on the soft mud left by the inundation water, or that is always to be seen on the edges of tidal rivers. Now and then, however, boro paddy is grown on somewhat stiffer ground, and when this is the case, the land has to be prepared by three to five ploughings.

Except on the edges of tidal rivers, the boro paddy requires to be artificially watered, and this is done by the canoe-shaped vessel known as the *duni* (in Burdwan as donga). At Mirpur the cultivators water their boro paddy at every full or new moon. The fields are all situated on the banks of the Toorag, which here is subjected to tides, but the water does not rise high enough to reach the fields.

*Injuries, &c.*—The crop is sometimes injured by hail, floods, drought, and wild boars.

The harvest time is Baisakh. The yield per bigha is 5 to 12 maunds, and thus of all varieties of paddy grown in the district the *boro* gives the greatest outturn. It is also the least expensive to grow, and has the additional advantage of not requiring any working bullocks for its cultivation. The boro land therefore fetches the greatest rent. At Mirpur the rent varies between Rs. 2 and Rs. 4-8 per bigha.

On the dearahs of the Meghna nursery land is very scarce. The land generally is low, and is not left dry by the inundation water sufficiently early to grow seedlings on it. The soil is also too sandy for a good nursery bed. When, therefore, a suitable plot of nursery land is found in any locality, it is turned into an immense nursery ground by the people of the neighbourhood, and even by men living at a long distance. The chur No. 64, or Bahar chur, about 2 miles by ¾ths, is this way almost wholly occupied by nursery grounds. When I was passing by this chur one afternoon, at the end of December 1888, I saw some 150 boats going away from the place laden with seedlings.

73. *Broadcasted boro paddy or lepi.*—In some of the islands of the Padma large areas of land are sometimes to be seen almost on the same level with water at low tide, and covered with mud so soft and deep that one standing on it is put in danger of being buried alive. The ryots have discovered a method of cultivation to grow paddy on it, known as the *lepi.* No ploughing, harrowing, or anything of the kind is needed, nor is it possible on such lands. All that is

necessary is simply to sow the seed broadcast, and plaster (*lepa*) the mud over it This is, however, not an easy task owing to the unstable nature of the ground. The man sowing the paddy has to support himself on a plantain tree, a piece of bamboo, or the like. The land is flooded at every tide, but that does not injure the seed on account of the mud over it being plastered Before sowing the lepi seed receives the same treatment as the seeds of *boro* and *rowa* paddy.

74. Is *lepi* a variety of boro or a mode of cultivation? In some books the *lepi* has been taken for a variety of the boro paddy. This, I think, is a mistake, for not only can the variety of boro usually grown this way be grown by transplantation like other varieties, but a variety of aus paddy, known as *shaita*, can also be, and is often grown as *lepi*. Near Kaliakur, again, when the land intended for the long-stemmed paddy is too wet to sow the seed on it in the usual way, the lepi system is often resorted to by the cultivators.

The boro is sown as *lepi* in Aghan, and the *shaita* in Pous. They are both, however, reaped at the same time, namely, in Baisakh.

75. Yield per bigha of different varieties of paddy—

| | | |
|---|---|---|
| (1) Aman | (*a*) shaldan ... ... | ... 3 to 10 maunds. |
| | (*b*) ordinary transplanted ... | ... 3 „ 7 „ |
| | (*c*) long-stemmed paddy ... | ... 3 „ 10 „ |
| (2) Aus | ... ... ... ... ... | ... 4 „ 6 „ |
| (3) Boro | (*a*) ordinary ... ... | ... 5 „ 12 „ |
| | (*b*) lepi ... ... ... | ... 4 „ 6 „ |

76. *Sugarcane.*—The cultivation of this important crop is of a very limited nature here, and is confined to a few localities. The cause of this is twofold—*firstly*, there is very little land suitable for the cultivation of sugarcane in the most populous part of the district; and *secondly*, the part of the district which could be turned into the greatest sugarcane-growing tract in Bengal is a jungle and scarcely inhabited.

77. Sugarcane is grown here on the following classes of land and soil:—

1*st*—On the outskirts of the Madhupur jungle, namely, near the towns of Dacca and Mirpur and on the banks of the Lakhya. The soil here is red clay, mixed with more or less river silt and vegetable mould.

2*nd*—On the high banks of the Brahmaputra and the Meghna, containing soils more or less sandy.

3*rd*—In Rampal, where the soil is a fine loam.

4*th*—On the newly-formed alluvial land which is more or less flooded during the rains.

5*th*—On the artificially raised alluvial soil on the banks of the Dulai creek. There is not much sugarcane land here, but what is grown is perhaps the best sugarcane produced in any part of Bengal.

78. *Varieties.*—There is a number of different varieties of canes grown here, some of which are very fine and well suited to the soil on which they are cultivated. *First*—The *khagri* is a thin, hard cane that will grow on any land. It is generally grown on land that will grow no other cane, namely, the low alluvial land on which stands four to six feet of water during the rains. The juice is rich in sugar and capable of producing first-class *gur*, but the outturn is very poor compared with other varieties. *Second*—The *dhalsundar* is a white cane with a reddish tinge, thicker than the *khagri*, but cannot stand stagnant water nearly so well as the latter. This is the variety that was formerly most extensively grown, but it has been of late largely superseded by better varieties. *Third*—The *merkuli* is generally grown on the banks of the Meghna and the Brahmaputra. It seems to be the same as *dhalsundar*, but altered a little from having been grown long on much drier soil. *Fourth*—The *kali* or *kajli* is a hard, red cane, having few qualities to recommend itself. *Fifth*—The red Bombay is the same as the Bombay of West Bengal and the red Paunda of Saharanpur. This was the variety of cane that Captain Sleeman brought from the Mauritius. It is a very superior cane, suited to high land, but extremely delicate. It was for a time largely grown near Dacca, but

it does not seem to tiller well on the red clay, and has almost gone out of cultivation. *Sixth*—The *sharang*, known in the north-eastern part of the district as the *sharang* of Dhalbazar, is a white cane, somewhat inferior to the *shamshara* or the Otahitic cane of West Bengal. *Seventh*—The white Bombay is perhaps the same as the white Paunda of Saharanpur. It is a thick cane, juicy, and rich in sugar, somewhat harder than the *shamshara*, but grows to a much longer size than the latter. It is a hardy cane that will stand wet soil much better than the red Bombay. Taking everything into consideration, this is, I believe, the best cane for Lower Bengal.

79. *Tillage.*—The mode of preparing the land is different in different parts of the district, and the variation is due to the difference in the nature of the soil. 1*st*—On the red clay the plough is very little used. The market gardeners near Dacca prepare the land with the sole aid of the hoe, and sometimes even the use of the hoe is as much as possible economised. The land here is covered with jungle, being in fact the southern extremity of the Madhupur jungle. When a plot of land is for the first time to be broken, the thorny plants and other bushes and long grasses are cut at the beginning of winter and allowed to dry for a month or so. They are then set fire and burnt. The whole ground is then carefully hoed. The unburnt roots are gathered together and are either burnt again or used as fuel. A second hoeing is given about a month after, and a sort of rough tilth is obtained this time. The land is left in this condition till the beginning of the rains, when holes are dug all over the field exactly 36 inches apart each way. A few days after these holes are partially filled with well-rotten cow-dung bought of the *Goalas* (milkmen) and *Kolhus* (oilmen) of the town. The cow-dung is the only manure used here.

While this preparation of the land is going on, the cuttings have to be obtained and seedlings raised from them. The market gardeners here obtain their cuttings from the entire plant, throwing away only about two feet or so from the lower end. The plant is cut into pieces about six or seven inches long, each containing two joints. These cuttings are then horizontally laid on a plot of ground well prepared for the purpose, and chosen near a tank or well. The cuttings are only half buried in the earth, and so arranged that the buds may be placed laterally. The ground is kept wet by watering from time to time from the tank or well. The shoots soon come out, and when they are about a foot high they are fit for transplantation. In places infested with white-ants the cuttings are laid on a bamboo platform covered with about two inches of earth. Near Dacca the plants that are unripe and thrown down by the storm, and are rather thin looking, are considered the best to obtain cuttings from. Advantage is now taken of a heavy shower of rain to transplant the seedlings. In each hole are placed two cuttings prepared as above, and the whole are then partially filled up by the earth formerly raised in making them. When sugarcane is grown on fields already under cultivation, the time of transplanting the seedlings extend from Kartik to Jeith, but early planting necessitates the expenditure of much labour and money in watering the fields artificially.

*After-treatment.*—All through the rains the land is kept clean by weeding it with the *pashuni*, and it is a noteworthy fact that the market gardeners here make very little use of the hoe after the seedlings have been transplanted. The old leaves are regularly stripped off, the cultivators here being under the impression that unless this is done the plants do not increase in length.

80. 2*nd*—The land on both sides of the Dulai creek was artificially raised while the creek was excavated. The soil is a fine sandy loam, rich in organic matter, and very retentive of moisture. The variety of cane grown here is the white Bombay, and it is sold entirely as sweetmeats in almost all the important hâts of the district from Teota to Narsingdee and from Kaoraid to Lahajang.

*Tillage.*—Ploughing is commenced early in Aswin, each ploughing being followed by the rolling of the field twice with the ladder. Altogether about seven to eight ploughings and twice as many rollings are given. The ground is finely pulverized and stirred to a great depth and well cleaned. The land is this way got ready by the middle of Kartik, when parallel lines are drawn all over the field, 36 inches apart, and along these lines holes are made at an interval of about 20 inches. The raising of the seedlings in the nursery and their transplantation are done exactly in the way described above.

*After-treatment.*—When the seedlings have taken root in the soil, the field is weeded, and the soil near the plants loosened with the sickle. This loosening and aerating of the soil is absolutely needed, for otherwise the plants cease to grow. A few days after, the whole field is hoed, and the holes are again partially filled. About a fortnight after a second hoeing is given, and this time some well-rotten dung is placed around each clump and covered with earth, thus entirely filling up the holes. Another weeding and hoeing follow, and in the course of this latter operation the plants are earthed up. About the middle of Baisakh the canes begin to form *joints*, when the leaves are stripped off for the first time. Throughout the rains the field is kept clean and the soil loose by weeding and hoeing at intervals, and the canes are also stripped of the old leaves regularly. To prevent high winds and storms from throwing away the canes, all the plants in the same clump are tied together by means of old leaves.

The plants become well ripe at the end of the rains, but the sale of the canes to the *beparis* begins early in Bhadra. After the crop has been harvested, it is customary here to cover the fields with virgin earth taken from the bottom of the creek below and the shoots allowed to grow. This earth is the principal manure used here, and sometimes so much as Rs. 20 is this way spent per bigha. A ratooned crop thus obtained is generally heavier than the first crop. The operation is repeated at the end of the second year's harvest, and a second ratooned crop is taken, which is almost equal to the first crop. After this the field is ploughed and sown with aus paddy or *muskalai*. The paddy or the kalai is followed by sugarcane, which is again kept up for three years.

The profit derived from the cultivation of sugarcane in this locality is generally very great, and sometimes simply enormous. In one instance a man having about 4 bighas of sugarcane obtained the first year Rs. 350, the second year Rs. 400, and the third year Rs. 300, *i.e.*, Rs. 1,050 in all, while his expenditure for the three years did not amount to Rs. 500.

81. Near Dacca cane seedlings raised in the way described above are sometimes sold by the cultivators, and bought by persons who are taking to sugarcane cultivation for the first time. The usual price is about Rs. 5 per thousand.

82. *3rd—Sugarcane cultivation on the newly-formed alluvial soil of the district.*—The two varieties generally cultivated on such soils are *dhalsundar* and *khagri*, and those are partly sold as sweetmeats and partly made into *gur*.

*Tillage, &c.*—Fallow land is generally selected for this crop. As soon as the rain-water has receded, the ground is deeply hoed by the *kodali*, and then ploughed and harrowed several times. In general five to six ploughings and as many harrowings are given. Mustard seed is then sown at the end of Kartik at the rate of 2 seers per bigha. As soon as the mustard is off the ground in Falgoon, the field is ploughed once or twice, and in Chait pond mud is spread over it as a manure. Not more than Rs. 4 to Rs. 5 is spent on manuring, lest if more mud be applied the cane may grow too luxuriantly and be thrown away by storms. Three or four ploughings and harrowings more are then given, and the land is got ready early in Baisakh, and sometimes even at the end of Chait.

*Seedlings*—Are raised in the way described above, but instead of using the whole canes, the tops only are used by the cultivators of these alluvial lands. The planting does not commence till the rains have set in earnest, which generally happens at the end of the first week of Jeith. Parallel furrows are now made all over the field, about 27 inches apart, the plough being drawn either by men or by a pair of steady bullocks. Cuttings, or rather the seedlings, are then planted in these furrows, about a foot apart. The after-operation consists in the hoeing and weeding the ground as often as the weeds appear, and the soil gets hardened by the rain. At the second hoeing the plants are slightly earthed up. The old leaves are neither stripped off nor wrapped round the plants.

83. *4th—On the high banks of the Brahmaputra and Meghna.*—The varieties of cane under cultivation here are the *merkuli*, *kali*, and *sharang* of Dhalbazar.

*Tillage.*—The tillage operation is the same as that described under *3rd*.

*Cuttings.*—The tops only are used here, and in a year of sufficient rainfall the cuttings are planted without any previous treatment whatever, otherwise

they are prepared as follows:—(*a*) The cuttings of the *sharang* variety undergo the operation locally known as *badhi*. The *badhi* is the same as the putting in the *Hanpur* of West Bengal. The tops are stripped off the leaves, cut into pieces, each containing a couple of joints, and rubbed with some pond mud. They are then put in a hole and covered with straw or leaves, and water is daily applied to the cuttings to keep them slightly wet. For the tops of *merkuli* and *kali* a hole is dug close to a pond or creek, and the bottom of the hole is made into mud. The cane tops are driven into this mud in a compact mass for about 2 or 3 inches and kept in a standing position. Water is applied from time to time to keep the tops cool. Neither the cuttings nor the tops are planted till two or three heavy showers have fallen.

*Planting.*—Parallel trenches are made by the *kodali*, 27 inches apart, and in these trenches cuttings are planted at intervals of about 18 inches.

*Manure.*—Cowdung and mustard cake are generally used. The former is applied while the land is being prepared, and the latter before the plants are earthed up. These are always used in very small quantities. The after-treatment is the same as that described under 3*rd*.

84. In some places on the banks of the Brahmaputra, when it is intended to grow sugarcane on land that is too sandy for this crop, or that has been exhausted by repeated cropping, the fertility of the land is first restored by laying it down in a kind of long grass called *ulu*. How this is done will be described later on under the *ulu* crop. The *ulu* is harvested in Aghan, and immediately after the field is manured with dung and ploughed. The land is got ready by Falgoon, and sugarcane cuttings are planted in Baisakh, and sometimes even in *Chait*.

85. *Gur-making.*—The Behea sugarcane mill, which has produced almost a revolution in the sugar-growing districts of Behar and West Bengal, is unknown in Dacca. The art of *gur*-making is also little known or practised, so that, though the extent of land capable of growing sugarcane in this district is probably greater than in any part of Behar and Lower Bengal, with the exception of the neighbouring district of Mymensingh, yet the supply of sugarcane for local consumption comes from such distant places as Ghazipur and Benares. The wooden mill, known as the *kerki*, is still in use here. It is worked by a pair of bullocks or six men, four working at a time. The cane is passed and repassed three times through the mill, and even then a large percentage of the juice is left in the *begass*.

The juice is boiled in four large earthen pans arranged over a furnace in two rows, and as it gets thicker and thicker is gradually collected in one pan, fresh juice being put in the first pan from time to time.

Two different preparations are made, corresponding to the *rab* and *gur* of Upper India. These are kept in earthen pots, each capable of containing from half to three fourth maund. The yield per bigha varies between 7 and 20 maunds.

86. *Wheat.*—Wheat is not at all extensively grown here. There are only three places in the district where it is grown to any extent, namely—(1) near Patharghata at the junction of the Ichhamati with the Dhaleswari; (2) the low plains to the north and east of Rowile; and (3) near Teota at the junction of the Jenai with the Padma. In all these places the soil on which wheat is grown is more or less clay.

This crop was introduced into the Dacca district from Patna by the Mahomedan carriers of goods. The Patna seed soon deteriorates when grown here continuously: new seed had therefore to be imported every fourth or fifth year.

*Tillage.*—The ploughing commences at the middle of Aswin, or as soon as the inundation water recedes. The early preparation of the land is absolutely necessary, for it has been found from experience that unless the seed is put in before the end of Kartik, it is impossible to get a full crop. The land is prepared by about four ploughings and as many harrowings. In case of land newly broken, the number of ploughings may amount to even eight. A fine tilth is not needed, nor is it necessary to dry the soil much.

Ten seers of seed are broadcasted over a bigha of land and ploughed in, and the sowing is finished by passing the ladder over the field once or twice. The only other operation to be done before the harvest time comes is a weeding. Two weeds generally grow in wheat fields, namely, *dulali* and *shiali*;

of which the former is a parasite, and unless removed in time will do considerable injury to the crop by choking up the plants.

The wheat is harvested in Chait. Yield per bigha varies between 2 and 5 maunds. The cultivators here sometimes experience much difficulty in threshing out the grains owing to the dampness of the atmosphere.

87. *Barley.*—Barley is grown in the dearahs of the Jenai, Padma, Meghna, and the Dhaleswari. It thrives best in sandy, alluvial soil. At the end of Aswin, or early in Kartik, the land is prepared by four or five ploughings and two or three harrowings. On the light soil on which this crop is sown a good tilth is easily obtained.

The proper sowing time is the middle of Kartik, though it is sometimes delayed till the end of Aghan, but a late crop of barley never gives a good return. Ten to 12 seers of seed are sown broadcast per bigha.

Barley fields require no weeding. Yield per bigha is 2 to 3 maunds. When the soil is too sandy, the crop is burnt up for want of moisture.

88. *Cheena.*—This millet is more grown in the Nawabgunge thana of the sudder subdivision than anywhere else in the district. It delights in a rich clay loam, such as is generally found close to jheels. The soil must be neither too wet nor too dry. The land on which *cheena* is grown does not produce any other crop, as it is supposed to have a heating effect on the land, injurious to other crops.

*Area.*—About 10 per cent. of the cultivated area here is sown with this crop.

*Tillage.*—The ploughings commence at the end of Pous, or very early in Magh. In the preparation of land for this crop every care should be taken to retain as much moisture as possible, and this is done by using the ladder two to four times after each ploughing. The land is this way ploughed and rolled at intervals for about three weeks. Altogether about ten ploughings are given. The clods are broken by the *intamugar*, and a fair tilth is obtained.

The seed is sown broadcast at the rate of 7 seers per bigha at the end of Magh. Immediately after the seed has been put in, the ground is ploughed two to three times, and rolled twice. The plants come out in seven to ten days. When they have grown to a height of 6 to 7 inches, the field is carefully weeded.

The crop is rather a precarious one, and if there be no rain in Falgoon, the crop will be a very poor one indeed. The harvest time is the end of Jeith. Yield per bigha is about 4 maunds, worth about Rs. 8.

89. *Kaon.*—This millet cannot be regarded as a regular crop in any part of the district. It is sometimes grown on high and well drained river banks containing a rich sandy loam. The *kaon* is very sensitive to stagnant water. If rain-water stand on the field but for 24 hours, the whole crop is lost.

*Rotation.*—It is generally grown on *aus* land.

*Tillage.*—The land is prepared very much in the same way as for *aus*. By repeated ploughings and rollings a good tilth is obtained. The operation commences early in *Magh*, and the field is got ready by the first week of *Falgoon*.

*Sowing.*—The sowing time extends from the middle of *Magh* to the beginning of *Chait*. Two seers of seed is broadcasted on a bigha of land.

*After-treatment.*—The plants come out in about a week. When it has grown to a height of 5 to 6 inches, the crop is thinned by harrowing the field once with the rake, and a weeding is given a few days after. The crop is cut in *Jeith*.

The yield per bigha is about 5 maunds of grain. The kaon straw is used as a fodder.

90. *Ulu* (*Saccharum Cylindricum*).—This is one of the two long grasses that supply the district with the thatching materials, the other grass being the *kaola* grown in the Madhupur jungle. In the village of Aralia and its neighbourhood the cultivators sometimes grow this crop, not so much for the sake of the thatching material it supplies as to render a field fit for the cultivation of sugar-cane that is naturally too sandy for this crop.

When a field is selected for growing *ulu*, the first thing to be done is to manure it lightly with dung. The field is then turned into a grazing ground, and kept up as such for two to three years. By this time small *ulu* plants make their appearance all over the field, and as soon as this is the case cattle are prevented

from entering into it. The *ulu* plants soon grow and cover the whole ground The harvest time for *ulu* is Aghan. The field is kept under *ulu* for two to three years, after which it is broken and planted with sugarcane. It has been found that land treated this way increases much in fertility, and quite exhausted fields are thus rendered fit for the cultivation of some of the most important crops. Yield of a bigha of *ulu* is equal to 35 *bojhas* on the average, worth about Rs. 5.

91. *Lataghas.*—In the churs of Meghna and Dhaleswari I met with a fodder grass known locally as *lataghas* or *khyla*, which probably belongs to the same species as sugarcane. This fodder is extensively cultivated in some places, especially in the western part of the Moonshigunge subdivision. During the rains in 1886, when the greater part of Dacca suffered from high floods, and when other fodder was most scarce throughout the district, this grass saved the lives of thousands of cattle, and owners came to buy it from a distance, in some cases exceeding 50 miles. *Lata* is supposed to be a very nutritious food, and is much appreciated by cattle. As food for milk cows it is believed by ryots to increase the quantity of milk and to improve its quality. The cultivation of this grass is very simple. A number of plants are taken off a field and cut into small pieces; these cuttings are then planted in the soft mud left near riversides on the receding of the inundation water. No further care need be taken of it till the time comes for cutting. The outturn of a bigha is in ordinary years said to be worth about Rs. 20. Once planted it will give one cutting annually for three successive years, after which the field should either be broken up and sown with some other crop or replanted. The plant seeds freely, but the first full crop is not obtained earlier than the end of the third year. During the rains a large sale of this fodder takes place in all the *hâts* of Eastern Moonshigunge.

92. Onions.—This crop is more grown in the Nawabgunge and Harirampore police stations than anywhere else in the district. The onion tract extends along both sides of the Ichhamati from Chhatea to Jhitka. The village of Chhatea is especially noted for its onion cultivation, and exports about 3,000 maunds of onions annually to Sylhet, Cachar, and other places. Of the two varieties of onions known as the *bara piyaj* (large onions) and *chota piyaj* (small onions), only the latter variety is grown here, which in point of flavour is much superior to the former.

*Soil.*—The soil along the Ichhamati is a good loam, slightly yellowish in colour. It has been formed by an intermixture of the old silt of the Ichhamati with that of the Ganges and the Jenai. A sandy soil is not suited to this crop, for it does not retain sufficient moisture for the proper growth of the plant. A clay soil, on the other hand, is considered too wet, and on such a soil, though the plants may at first look strong and healthy, they will soon turn yellow and die away.

*Rotation.*—The best onion fields here grow no other crop but onions.

*Manure.*—As soon as the previous crop has been harvested, the field is thickly covered with paddy straw and ploughed in. The straw rots in the soil, and serves the purpose of a manure. No dung or any other manure is applied, as these are believed to spoil the flavour of the onions.

*Tillage.*—The ploughing commences early in Kartik. A good tilth is needed for the onion crop, and this is secured by using the ladder two to three times after each ploughing. Five to eight ploughings and 15 to 20 harrowings are this way given, and the field is got ready for planting at the beginning of Aghan.

Each bulb of onion contains within it four to five bulblets or buds. In the cultivation of the smaller variety of onions these buds are planted in the field. Four to five maunds of onions are needed to plant one bigha of land.

On the day of planting the field is once more ploughed and harrowed. Furrows are then made, about nine inches apart, by means of a small plough known as the onion plough and drawn by men. Holes are now made at the bottom of the furrows, at intervals of from 4 to 5 inches, and in these holes the onion buds are buried and covered with about 3 inches of earth.

The plants come out in about a week, when the first weeding is given. It is necessary to keep the onion field as clean as possible, and to do this three to four weedings are sometimes needed and given. Stagnant water is very injurious to this crop. The rain-water should therefore be let out without the least

possible delay, and after every shower of rain the soil round the plants should be loosened by means of the sickle or *pashuni*.

The planting time extends throughout Aghan, and the crop is harvested in *Chait*. The outturn in a good year may amount to 50 maunds per bigha, but generally it is not more than 30 maunds.

*Diseases.*—A small black insect, about an inch long, makes its appearance in years of heavy rainfall. It should be carefully picked up by the tip of the sickle and destroyed, for otherwise the entire crop will be lost. Hail is also very injurious to onions.

93. GARLIC.—This crop is very largely grown near Karimgunge on the Ichhamati.

The soil most suited to garlic is a good loam. Garlic is generally grown on land on which the aus paddy grows during the rains.

Early in Kartik the straw of the aus paddy is gathered and burnt, and the field is repeatedly ploughed and harrowed till a good tilth is obtained. No less than 10 to 12 ploughings are generally given.

The planting time extends from the middle of Kartik to the middle of Aghan. As in the case of onions, the small buds contained within the bulbs are planted. The mode of planting, however, is not exactly the same as that adopted in the case of onions. It is not necessary to bury the garlic buds as deep as those of onions. The garlic buds are therefore simply put along the bottom of the furrows at intervals of five to six inches, and covered with the soil raised by the plough.

When the plants grow to a height of about 6 inches, the field is weeded. A second weeding is sometimes needed and given. As in the case of the onions, the soil round the plants are loosened if caked by a heavy shower of rain.

The crop is harvested in Chait. The yield per bigha is generally 20 maunds.

94. KACHU.—There are three or four varieties under cultivation, of which the variety known as *narikeli* is considered the best.

*Soil.*—This crop can only be successfully grown on land containing a humous soil, full of organic matter and moisture. It is therefore grown on the edges of jheels, old beds of rivers, and of old tanks choked up with aquatic vegetation.

*Preparation of the land.*—When the land is sufficiently soft and the cultivation is undertaken on a small scale, no ploughing is needed, but the ground is puddled by means of the feet with the occasional aid of the hoe. If, however, the soil is of a firmer character and a comparatively larger field has to be planted, the land is ploughed repeatedly till it has been well pulverized and deeply stirred. To do this from 10 to 15 ploughings and as many harrowings are generally needed.

*Planting.*—The plant is propagated by cuttings of the creeping stolons that the plant throws out close to the ground. In the case of the humous soil, the cuttings are simply pressed into the earth, about 20 inches apart either way. In dry fields parallel lines are first marked by the feet along the field, as well as across it at a distance of about 20 inches from one another. Holes are now dug by means of the sickle where two lines meet, and the cuttings described above are buried in these holes. The plants shoot out in about a month.

*After-treatment.*—The after-treatment consists in keeping the field perfectly clean and the soil loose. This is done by hoeing the land as often as the weeds appear and the ground gets hardened or caked. On the average about 10 hoeings are this way given. The cuttings are planted at the beginning of Aghan, and the crop is harvested in Sravan.

95. PLANTAIN.—Plantain grows everywhere in the district, but it is in Rampal and its neighbourhood that the crop is under regular cultivation, and this is the place which produces perhaps the best fruit procurable in any part of Bengal. The land here is 2 to 5 feet above the inundation level, and contains a very fine yellowish loam. The soil of the Madhupur jungle is also well suited to this crop.

*Varieties.*—The different varieties of plantain under cultivation in Rampal are the *kabari*, *sabari*, *chinichampa*, *kanaibansi*, *amritabhog*, *martaban* (Martaban), *agniswar* and the *bichikala*. Of these, the *sabari* (the Martaban of West Bengal) has the best flavour, but *kabari* occupies the greatest area.

*Tillage.*—In the month of Bhadra or Aswin the land is deeply hoed with the *kodali*, and then ploughed and harrowed four to five times. In Kartik mustard is broadcasted on the field at the rate of one and a half seer per bigha. The mustard is harvested in Falgoon, and immediately after the land is again ploughed. Nothing more is done till Chaitra, when pond mud is spread over the field to a depth of 4 to 6 inches. In Baisakh three to four ploughings and as many harrowings are rapidly given one after another, and at the end of that month plantain trees are planted about six to seven feet apart either way. Between the plantain trees trenches are then drawn with the *kodali* about 15 inches apart, and in these trenches are planted ginger or turmeric, or both at intervals of 9 inches. After about a fortnight the space between the lines is hoed. The plants make their appearance in Jeith. All through the rains the field is hoed and weeded as often as the soil gets hardened, and weeds make their appearance. Altogether three to four hoeings and two to three weedings are this way given. No tillage operation is needed after the month of Kartik. The ginger and the turmeric are harvested little by little all through the winter and the early part of summer. The plantain trees begin to flower in Chait. As often as necessary the old leaves are stripped off, and the field kept perfectly clean. The field supplies ripe fruits from Sravan to Aswin. The shoots that make their appearance round the plants are cut off about a foot above the ground and given to the cattle. The shoots push out again, and again are they cut off. Between the months of Ashar and Aswin the shoots are this way cut off four times. Their upward growth being thus checked, the lower portions of the shoots develop to an extraordinary extent, and it is only shoots treated this way that the cultivators of Rampal plant in their fields. On examining a shoot in a clump of plantain it will be observed that it has two lateral sides, differing somewhat in character, of which one is directed towards the parent plant and the other points away from it. This distinction is carefully attended to by the Rampal cultivators while planting the plantain shoots. All the plants in the field have the same side always placed in the same direction, and the result of this arrangement is that the trees all bear flowers pointing to the same direction. The cultivators here do not allow more than one tree to grow in one place. After the field has been harvested, it is left bare, fallow, for two or three years. The plantain trees here do not suffer from any disease.

Cost of cultivation of a bigha of plantain at Rampal—

| | Rs. | A. | P. |
|---|---|---|---|
| Six men to hoe ... ... ... ... | 1 | 8 | 0 |
| Four ploughings ... ... ... ... | 1 | 0 | 0 |
| One and a half seers of mustard ... ... ... | 0 | 2 | 6 |
| One more ploughing ... ... ... ... | 0 | 4 | 0 |
| Harvesting mustard, three men ... ... ... | 0 | 12 | 0 |
| Threshing the same, three men ... ... ... | 0 | 12 | 0 |
| Once ploughing ... ... ... .. | 0 | 4 | 0 |
| Pond mud ... ... ... ... ... | 6 | 0 | 0 |
| Three ploughings ... ... ... ... | 0 | 12 | 0 |
| 400 plants .. ... ... ... | 14 | 0 | 0 |
| Planting the same, six men ... . ... | 1 | 8 | 0 |
| Planting ginger, four men ... ... ... | 1 | 0 | 0 |
| Four hoeings, 16 men ... ... ... ... | 4 | 0 | 0 |
| Two weedings six men ... ... ... ... | 1 | 8 | 0 |
| Harvesting ginger, three men ... ... ... | 0 | 12 | 0 |
| Price of ginger for planting ... ... ... | 5 | 0 | 0 |
| Cutting plantain shoots and harvesting the crop .. ... | 5 | 0 | 0 |
| Rent ... ... ... ... ... | 4 | 0 | 0 |
| Total ... | 48 | 2 | 6 |

*Outturn.*

| | | | |
|---|---|---|---|
| Mustard, 2 maunds ... ... ... ... | 7 | 0 | 0 |
| Ginger, 10 maunds ... ... ... ... | 20 | 0 | 0 |
| Plantains ... ... .. ... .. | 50 | 0 | 0 |
| Plantain shoots ... ... ... ... | 10 | 0 | 0 |
| Total ... | 87 | 0 | 0 |

96 GINGER.—Ginger is grown to some extent in some of the villages within the Madhupur area and in Rampal. In the latter place, as stated above, ginger is grown as a catch crop in the plantain fields.

*Tillage.*—The ploughing begins in Falgoon. After the land has received one or two ploughings, it is manured with well-rotten cow-dung and cow-dung ashes. Ploughings and harrowings are then continued at intervals till a fine clean tilth is obtained.

*Planting.*—The rhizomes are planted at the end of Baisakh. After the land has been well levelled by means of the ladder, furrows are drawn, 15 inches apart, and in these furrows small pieces of ginger saved from the previous crop are put in at intervals of 8 to 9 inches and covered with about 3 inches of earth. About a fortnight after the space between the lines is hoed with the *kodali*. The plants come out in Jeith and Ashar. The field is now hoed once a month or at longer intervals, and weeded as often as it becomes unclean. During the second hoeing the plants are lightly earthed up. The last hoeing is given in Kartik. All through the winter and the early part of summer the crop is raised from time to time and sold.

The yield is from 15 to 25 maunds per bigha, worth from Rs. 30 to Rs. 50.

*Preservation.*—When put in a pit or silo, ginger keeps well for about two months.

*Diseases, &c.*—Ginger sometimes suffers from excessive rainfall in Bhadra and Aswin.

97. TURMERIC.—Turmeric is not much cultivated in the Dacca district, which receives its supply of this important spice, so essential to the native system of cooking, from Patna, Jessore, and other places. There are only two places in the district where this crop is grown to any large extent, namely, some parts of the Madhupur jungle and Rampal, near Moonshigunge. Formerly turmeric was also grown in some of the old dearahs by a class of market gardeners known as the *Purqs*, who used to come from Jessore and other places. These men are no longer to be met with in any part of the district.

The crop seems to thrive in the soil of the Madhupur jungle. I have seen excellent crops of turmeric raised there with comparatively very little labour.

*Tillage.*—As early as possible in Chaitra, advantage is taken of a shower of rain to give the land the first ploughing. Altogether five or six ploughings are given and as many rollings with the ladder. The field is got ready by the middle of Baisakh, when small pieces of the rhizome kept for the purpose from the produce of a previous crop are planted in lines, about 27 inches apart and at intervals of 9 inches in the rows. When the plants all appear, the whole ground is once hoed carefully. About a month afterwards the space between the rows are hoed and the plants earthed up. This finishes the operation.

The rhizomes are raised in Magh-Falgoon. They are then cleaned and boiled with water in earthen pans. The thicker pieces are cut across before boiling, the smaller pieces being boiled entire.

Yield per bigha is equal to about 30 maunds of rhizomes, which when dried give about 5 maunds of turmeric, worth from Rs. 20 to Rs. 25.

98. TIL (AN OILSEED).—Only one variety of til is grown here, namely, the white or *kat* til.

Til is now seldom sown alone. It is sown either along with aus paddy or with aman paddy, or in some places, as in Manikgunge, the three crops are broadcasted together in the same field. This system of mixed cultivation has already been described.

*Soil.*—A sandy alluvial loam is considered the best for this crop. The land must be high and well drained, for stagnant water is most injurious to til.

*Tillage.*—The field is given about two ploughings and two harrowings in Falgoon. Two to three more ploughings and harrowings are given in Chaitra, and then, taking advantage of a shower of rain, the field is once more ploughed, and seed broadcasted at the rate of 2 seers per bigha. The seed must not be buried too deep.

The plants come out in three to four days, and when they grow to a height of 4 to 5 inches, the field is harrowed by the rake which serves to thin the plants as well as loosen the soil. The thinning is a necessity in case of the til crop, because if grown too thick the crop will be exceedingly poor.

A weeding is given almost immediately after. In some places instead of the harrowing and weeding the field is lightly hoed by a small *kodali*. The harvest time is the end of Jeith. Yield—about 5 maunds per bigha. Hails sometime do considerable injury to this crop.

99. POTATOES.—Potatoes are not much grown in the Dacca district. The cultivation is confined almost entirely to the four villages of Bhawal, Atti, Kalatia, and Rohitpur, and altogether there will not be more than 100 bighas of land under this crop in the whole district.

The introduction of this crop into the Dacca district is supposed to have been made by the late Mr. Wise, the great indigo-planter of Eastern Bengal.

*Variety under cultivation.*—There is only one variety of potatoes cultivated here, namely, that known in the Calcutta markets as the Bombay, but the seed of which really comes from the Khassi hills. On account of the failure of the potatoes in these hills, owing probably to the crop having been attacked with blight, the seed of this variety of potatoes has of late become exceedingly dear, and as a consequence the cultivation of potatoes in the Dacca district is diminishing. The seed is bought either at the Dacca markets or imported directly from Sylhet. Formerly good seed could be had at Rs. 3 to Rs. 4 a maund, but the price has now risen to three times as much.

*Soil.*—The soil considered best for potatoes is the *doosh* or loam, neither too sandy nor too clayey. It must possess a good retentive power, especially as potatoes are not here artificially watered. Sandy land is sometimes rendered fit for growing potatoes by mixing it with the soil taken from the bottom of a creek. The site that is generally selected for a potato field is the dearah land on the side of a small river or creek. The advantages of such land for this crop have already been described in my report of the Burdwan Division.

*Rotation and tillage.*—Potatoes may be followed by *aus* paddy or jute in the rainy season, but as paddy lodges when grown in the potato field, jute is the crop that generally follows potatoes. In the month of Aswin the potato cultivators bring dung from the Kolhus or oilmen and Goalas of Dacca and Mirpur, and keep it in heaps in the field intended for the potatoes. They pay about Rs. 3 for every 150 maunds of dung, including cost of carriage. Early in Kartik, as soon as the inundation water has subsided and the land has become sufficiently dry, the ploughing begins. After two or three ploughings the dung is spread evenly over the field, which had to be ploughed 10 to 12 times more, and the ladder passed nearly as often, before it is fit for planting. About 200 maunds of dung is applied per bigha. The dung generally applied is not sufficiently rotten, and as a consequence great damage is sometimes done by insect pests.

When by repeated ploughings and harrowings a good tilth has been obtained, and the soil has become sufficiently dry, parallel furrows are drawn all over the field at a distance of about 16 inches from one another. Entire middle-sized potatoes are put at the bottom of the furrows, about 6 inches apart, and covered with the earth by the hand. Three to 4 maunds of seed is required for a bigha of land. The plants shoot out in about a fortnight, and when all the plants have come over ground, the field is weeded and then carefully hoed. The plants are not thinned, but all the shoots are allowed to grow. When about a foot high they are earthed up by means of the *kodali*.

The potatoes are dug up in Falgoon.

*Diseases.*—An ash-coloured insect, about 1½ inches long, with a black mouth and full of bristles at the joints, and probably the caterpillars of a species of *cut-worms*, often do considerable damage to the potato crop. During the night-time they cut the plants near the ground and eat the leaves, and during the day-time take shelter underneath the ground and eat the tubers. The crop is sometimes injured by rain when it falls shortly after planting, but occasional rain afterwards is beneficial.

*Yield.*—The yield is from 30 to 40 maunds per bigha. The potatoes grown in the Dacca district are the best grown in the plains. They are perfectly white and mealy, and not so watery as potatoes raised with the aid of much artificial irrigation.

100. BRINJAL.—The brinjal generally cultivated in the Dacca district as a field crop is a special variety, producing horn-shaped fruits about one and a half inch in diameter, but from 6 to 12 inches long.

*Soil.*—It is generally grown on fine sandy loam, such as is often met with near small rivers and creeks. It is largely grown for the Dacca market at Bochilla and Atti.

*Nursery.*—For raising the seedlings a plot of ground is selected either close to the homestead or on the riverside. This is repeatedly hoed with the *kodali* and lightly manured with cow-dung ashes and a little well-rotten cow-dung. The seed is sown by the end of Aswin, and the seedlings are ready for transplantation in about a month or six weeks. The nursery does not require watering, but must be kept clean by one or two weedings.

*Tillage.*—The brinjal fields are not directly manured, as the crop is liable to suffer from the insect pest from an injudicious use of dung. When it is intended to enrich the soil, dung is generally applied to jute or *aus* paddy that generally precedes the brinjal crop. The best land for brinjal is, however, that which, owing to an annual deposit of silt during the rains, is capable of yielding a good outturn without any manure. Such is the nature of the land near Bochilla, which is the most important brinjal-growing village in the district. As soon as the field has been left dry after the rains, it should be repeatedly ploughed and harrowed, and clods that may be raised be well broken with the aid of the *intamugar*. Ten to 12 ploughings are altogether given before the field is considered fit for transplantation. The seedlings are generally transplanted at the end of Kartik.

*Transplantation.*—After the field has been well levelled with the aid of the ladder, furrows are drawn, about 22 inches apart, and in these furrows the seedlings are put in at intervals of 18 inches. It is not necessary to water the seedlings, nor to cover them in any way to protect them from the sun.

*After-treatment.*—About a month after planting the field is weeded and the space between the rows are hoed, and a week later a little earth is removed from round the plant, so as to aerate the roots. In about a month a second hoeing is given, and this time the plants are lightly earthed up.

The plants begin to supply fruit from the beginning of Magh, and die out in Jeith.

*Disease.*—Insects often do much injury to the brinjals, and when this is the case cultivators make use of wood-ashes as a remedy.

The yield per bigha is generally worth about Rs. 25. Other varieties of brinjals, especially the one known as *lafa*, a large purple-coloured, round variety of very superior quality, are now and then seen in the markets, but they are not cultivated as a field crop. Another round variety grown in the Madhupur jungle, and known as *bhanta*, is deficient, both as regards the size and the flavour of the fruit it produces.

101. CHILLIES.—This crop is extensively cultivated in the eastern part of the district, along the banks of the Meghna, the Brahmaputra, and the Lakhya. It may be noticed here that the great tract for growing chillies on this side of Bengal is the recent alluvial formation of the Meghna and its tributaries, extending from the banks of the Lakhya to the Chittagong-Tipperah hill range, and from the northern boundary of the Sarail pergunnah in Tipperah to the Moshkhal island in the Cox's Bazar subdivision of Chittagong. The western part of the Chittagong district, though rather remote from the mouth of the Meghna, has been formed by the silt of that river, and not by the silt of the Karnafuli, the Sungoo, and other rivers of Chittagong. The silt brought down by the Meghna is at first taken far into the Bay of Bengal, and then by some peculiarity in the current of the sea carried in the north-east direction and deposited along the coast of Chittagong. This is the origin of the island of Kutubdia, and the alluvial formation all along the Chittagong coast. Nor is this all. During the tides the silt is carried far into the interior, and all the lands along the lower courses of the Karnafuli, Sungoo, and the Matamori have a similar origin.

*Varieties.*—The same variety of chillies is cultivated all over the tract described above. The plants and the fruits are much smaller than those of the Patna variety.

*Rotation.*—In the Dacca district chillies come after jute or *aus* paddy.

*Soil.*—Chillies seem to thrive in a sandy loam, rich in organic matter and possessed of a high retentive power. A slight excess of saline matter in the soil

does not seem to disagree with this plant, but serves only to increase the retentive power of the soil, which is a great advantage.

*Nursery.*—A suitable plot of ground is selected, either close to the ryots' huts or in a corner of the field, afterwards to be transplanted. It is repeatedly ploughed or hoed, and the clods raised, if any, are broken down by the *intamugar* till a fine deep tilth has been obtained. Before sowing, the seeds undergo a thorough washing till a few of them placed on the tongue do not taste pungent. The seeds are sown broadcast in Aswin, and the seedlings transplanted in Aghan.

*Tillage.*—The straw of the preceding crop, if any remaining in the field, is collected and burnt, and the land is repeatedly ploughed and harrowed till a fine tilth is obtained. On the day of planting the land is well levelled by passing the ladder over the field two or three times. Lines are then drawn with the aid of the feet about 18 inches apart, and in these lines the seedlings are planted at intervals of about 14 inches.

*After-treatment.*—The after-treatment consists in hoeing the space between the lines and in weeding the field. This is done from three to six times.

*Harvest.*—The fruits ripen early in Jeith. They are spread over a mattrass and dried in the sun. It takes from three to seven days to have the chillies dried completely, the rain often very much interfering with this operation.

*Disease, &c.*—There are several varieties of insects that sometimes do considerable injury to the chillies. The *ledapoka*, a black insect, cuts the plant near the root in the night-time, and in the day-time takes refuge underneath the earth. The *bindapoka*, a white insect, makes holes in the fruit. Excessive rainfall is also injurious to the chillies.

The yield per bigha is generally about 4 maunds of dried fruit, worth about Rs. 20.

102. Tobacco.—Dacca obtains its supply of tobacco from Cooch Behar, Rungpur, and the Dooars, which form the great tobacco-growing tract in Bengal. The tobacco locally grown is generally intended for the home consumption of the ryots themselves.

*Soil.*—The only places in the district where tobacco is grown to any extent are the banks of the Meghna and Lakhya on soils rich in organic matter and possessed of a high retentive power.

*Varieties.*—There are several varieties of tobacco under cultivation here, namely, *bilati*, *deshi*, *kattabogi*, *siberjata*, *bilaikani*, *bangala*, and *hingti*. Of these *bilati* is not considered sufficiently strong to supply smoking tobacco for the cultivating classes. The *kattabogi* has the best flavour, and produces the largest leaves.

*Rotation.*—Tobacco generally follows jute, and it is the general belief among the cultivators that a good yield cannot be obtained unless the field has been previously sown with that crop.

*Nursery.*—The seeds are first sown in a nursery. For this purpose a plot of ground is artificially raised, about a foot or so, and heavily manured with well-rotten cow-dung and cow-dung ashes. By repeated hoeing a good tilth is obtained. Then the ground is given a gentle slope towards the sides, and well pressed by the feet. After the seed has been put in, which must be done carefully, so that it may fall evenly over the ground, the soil is again pressed by the feet. The best time for sowing the seed in the nursery is the middle of Bhadra. In case of the *bilati* variety the sowing may be delayed till the first week of Aswin, but a good crop can be obtained from the *kattabogi* only by sowing as early as possible. Rain-water does great damage to the seedlings. The nursery is therefore protected by a thatched roof. The seedlings are sometimes clean eaten away by red ants, but such a calamity can be prevented—at least partially—by pressing the ground hard by the feet and putting in a line of ashes all round the nursery.

*Manuring.*—It is not considered good to apply manure directly to tobacco unless the dung be well rotten. The dung is therefore generally applied to the previous jute crop at the rate of not more than 20 maunds per bigha. Virgin land requires no manuring.

*Tillage.*—The ploughing begins as soon after the jute crop has been harvested as possible, but this cannot be done till Aswin owing to the heavy rainfall at this time of the year. The land is repeatedly ploughed and

rolled till a good tilth has been obtained. Altogether about 10 ploughings are given.

*Planting.*—Before planting the field is well levelled by passing the ladder over it several times. A hole is then made by the weeding hook, a plant put in, and the soil is carefully pressed around it. The *bilati* variety is planted about 18 inches apart either way, but in case of *kattabogi* with larger leaves the distance is increased to 23 inches. Watering at the time of planting becomes necessary only when the rain has held back for some time. For three or four days the seedlings require to be protected from the sun. This is done by pieces of plantain stalks. The planting time extends from the middle of Aswin to the end of Kartik.

*After-treatment.*—After the seedlings have taken root in the ground, the soil around them is loosened by means of the fingers. The space between the rows require to be hoed as often as the weeds appear. When the plants have developed seven to eight leaves, the buds, both at the top and the axils of the leaves, require to be carefully pulled away, and sometimes this operation is repeated three or four times.

*Harvesting and curing.*—When the stalks become yellowish in colour, and red spots make their appearance in the leaves, the plants are cut close to the ground by means of the bill-hook. For three or four days they lie on the field or in a corner of the courtyard, when they are gathered in heaps and allowed to ferment for a couple of days. The next thing to be done is to spread the plants on the roof of the cowshed. Here they remain for three days, when the leaves are removed and hung by means of a rope inside a shed. About a fortnight after the leaves are put in a large heap, which is weighted by means of stones. In making this heap the leaves are so arranged as to have their stalk ends outwards. The curing is completed in three days more, when the leaves are sorted and made into bundles.

103. SAKARKAND ALOO.—The sakarkand aloo, or the sweet potatoes, are grown largely in the fine sandy soil on the banks of the Meghna and the Brahmaputra, and it is a crop of some importance there. Excepting perhaps *rahar*, there is no other crop that can stand sandy soil so well as the sakarkand aloo.

*Cuttings.*—The plant is propagated by cuttings taken from the top end of the creeper. A field of which the sakarkand aloo was harvested during the winter will, even if it has been ploughed and sown with other crops, produce at the end of the summer enough of plants to provide the cultivators with as many cuttings as he will ordinarily require. These plants are picked up and transplanted in a corner of the field intended for this crop.

*Tillage.*—The sort of land on which sakarkand is generally grown is so easy to work that two or three ploughings are enough to have it ready for planting. Early in Bhadra furrows are made all over the field parallel to one another and about a foot apart. Cuttings taken from the plants mentioned above are placed horizontally in these furrows and lightly covered, care being taken to leave the tips of the shoots above ground. No other operation is needed till the harvest time comes.

The roots are lifted in 'Aghan—Pous. Yield per bigha is about 30 maunds, worth nearly Rs. 40.

104. SAFFLOWER.—Safflower was at one time a very important crop of the district. Of the 8,448 maunds of safflower dye, valued at Rs. 2,90,655-8-6, that passed the Custom House of Calcutta in 1824-25 it is estimated that two-thirds were grown in the vicinity of Dacca. The part of the district where safflower was most extensively cultivated was the tract of the country between the Dhaleswari and the Padma, comprising the thanas of Manikgunge, Harirampore, and Nawabgunge. The industry declined since the introduction of the aniline dyes, and at the present moment it is all but extinct. Some few villages in the Nawabgunge thana are now the principal places where safflower is still grown to any extent. The plant is also grown to a lesser extent in the Manikgunge and Sabhar thanas along the banks of the Dhaleswari river. As was the case formerly, the village of Patharghata produces the dye of the best quality.

*Soil.*—Safflower can only be grown on a rich sandy loam, having a fine texture.

The land is prepared by five to six ploughings and as many harrowings. On the day of sowing the field is ploughed once more, and about 8 seers of seeds

are then sown broadcast on a bigha of land, and the sowing is finished by passing the ladder over the field once. The field is again ploughed on the second day after sowing, and once more in two or three days. The plants take nearly a fortnight to come out. When the plants grow to a height of 4 or 5 inches the field is weeded. A second weeding is sometimes given in about a fortnight. The plants begin to flower by the end of Falgoon. The flowers take four days from the date of their opening to turn deep orange, when they are collected in bamboo baskets, called *dulas*. The flowers that are plucked during the day are saturated with water in the evening, and next morning they are taken to the riverside and washed repeatedly. The washing is done by pouring water on the flowers from time to time and laboriously treading upon it. During the night they are put in a heap and kept covered. Next day the flowers are exposed to the sun all the forenoon, and in the afternoon washed as before. The operation is repeated four or five days until the water runs off clear. The mass is then divided into small portions, which are made into flat cakes and dried in the sun. The dye is sometimes adulterated with rice-meal.

A clear oil is extracted from the seeds of safflower, which can be used for all purposes for which mustard oil is generally used. Five seers of seed yield one seer of oil.

*Diseases, &c.*—Stagnant water is very injurious to safflower, and a kind of insect that generally makes its appearance after a foggy day sometimes does considerable injury by cutting the plants.

The yield per bigha is about half a maund of the manufactured dye, worth about Rs. 9.

105. Gimi Kumra.—This crop is peculiar to the Dacca and the Backergunge districts, and in Dacca it is grown in two different places and under quite different conditions.

In some parts of the Moonshigunge subdivision it is largely grown as a garden crop in the betel gardens on soils inclined to clay. On the other hand, it is grown as a field crop in the dearahs of the Jenai near Jaffergunge and Teota. It is used by the natives as a green vegetable, and is available at a time of the year when vegetables are rather scarce.

*Soil.*—As a field crop it is generally grown on loam, and can also be grown on clay, but sandy soil is not suited to this crop.

*Tillage.*—The land is prepared by ploughing and harrowing the ground four to five times. It is then levelled and the seed sown 6 feet apart either way. The seed must be quite fresh, and taken out from a fruit three or four days before its being put in the ground. The only other operation necessary is to hoe between the plants twice, and if grasses appear before the ground has been fully covered by the plants, to give a weeding or two.

The seed is sown in Aghan, and the fruits are available from Jeith.

106. Tarmuj.—*Soil.*—The tarmuj or water-melon is grown on the same kind of soil that produces gimi kumra.

*Tillage.*—The same as in case of gimi kumra. Before putting them in, the seeds are soaked in water for two days, and then drained and kept in a warm place till germination commences, when they are sown six to seven in each hole. The holes are made about 6 feet apart either way. When the plants come out, the ground is loosened and weeded by the weeding hook. The only other operation necessary is to hoe between the plants about twice. The fruits begin to ripen at the beginning of Jeith. The fruits are sometimes covered with earth in order to protect them against hail, as well as to make them grow to a larger size. Fruits so covered are also supposed to have a better flavour.

The money value of a bigha of melons varies between Rs. 7 and Rs. 30.

107. Karela (*Cleome pentophyalla*).—This green vegetable is peculiar to the Madhupur jungle, and large quantities of it are grown there. The principal *hát* for the sale of this vegetable is that at Pubal, where sometimes nearly a hundred boats may be seen laden with it.

Karela is a rain crop. As early as possible in the month of Baisakh advantage is taken of a shower of rain, and the field is either several times ploughed or hoed. Karela fields are not generally manured, but well-rotten dung and dung-ashes are now and then applied. Before sowing, the seeds are soaked in water for about 24 hours. They are then drained and sown in holes about 6 feet apart each way, putting in three or four seeds in the same hole.

In Jeith the field is several times hoed and the weeds picked up and removed. A thin bamboo platform is now erected over the field with bamboo posts, and near each hole is placed a slip of bamboo to allow the plants to reach the platform and then creep over it.

The fruits are obtained from Ashar till Bhadra.

108. UCHHE (*Momordica muricata*).—*Soil.*—A fine sandy loam is best suited to this crop, and it is generally cultivated in churs and other recent alluvial lands.

*Tillage.*—The field is repeatedly ploughed and harrowed till a good tilth is obtained. About 8 to 10 ploughings are generally given.

Previous to sowing the seeds undergo the same preparation as the karela seeds, but they are planted much closer, the holes being made only 3 to 4 feet apart. The seeds are generally sown at the end of Kartik.

The after-treatment consists in keeping the land loose and clean, and this is effected by hoeing the field once a fortnight or so. No less than seven to eight hoeings are altogether given. In the month of Pous the field is covered with the straw of the long-stemmed paddy, and the plants are made to creep over it. The plants give fruit from Falgoon to Baisakh, and die away in Jeith, as soon as heavy showers of rain begin to fall.

109. PHUTI.—*Soil*.—The best soil for this fruit is a fine sandy loam, such as is met with in the churs and banks of the lower courses of many of Bengal rivers.

*Rotation.*—Phuti generally forms a rotation with aus paddy.

*Tillage.*—By the repeated use of the plough and the ladder a fine clean tilth is obtained by the end of Aghan, and early in Pous lines are marked both along and across the field at four and a half feet apart, and where two lines cross one another four to five seeds are put together and covered with a little earth. The seedlings show themselves in 8 to 10 days, and as soon as they put forth four or five leaves the field is weeded. A few days after the earth round the plants is loosened with the end of the sickle, and should there be any clods still remaining in the field, these are broken with a wooden hammer. The space between the plants is then hoed at intervals for two or three times. By the end of Falgoon about the whole ground becomes covered with the plants, when the field requires to be very carefully watched to prevent trespasses by men, cattle, boars, &c.; for the phuti plants are exceedingly delicate, and will die away even if but slightly trodden by the feet. The fruits ripen in Chaitra.

The yield per bigha is generally worth about Rs. 30.

110. KHIRAI.—*Soil.*—It requires a somewhat moister soil than the preceding crop, and therefore its cultivation is not half so extensive here as in the Chittagong, Noakholly, and some parts of the Tipperah districts, where the excess of saline matter in the soil helps in retaining the necessary degree of moisture.

*Tillage.*—The land is prepared by four to five ploughings and two to three harrowings. Shallow trenches are then dug with the kodali about a cubit apart, and in these trenches are put in seeds, one in each place, and at intervals of 3 to 4 inches. The seeds are now covered by passing the ladder over the field once. When the plants put forth three to four leaves, the space between the rows is hoed with the kodali, and the plants slightly earthed up.

The seeds are sown in Aghan, and the fruits are plucked out in Falgoon and Chaitra. The yield per bigha is generally worth about Rs. 20.

111. PEAS.—There are two varieties of peas under cultivation here, namely, the chick or the ash-coloured small peas, and the large white peas, known as the Patna or Kabuli peas.

The tract that grows the best peas, and of which peas form the principal crop, is the low land that, commencing near Soongar on the Dhaleswari, extends as far as the Jenai to the north of Tangail. A stream of the Jenai flows through this tract during the rains, and does considerable injury to the paddy crop, whole fields of which are sometimes torn off their roots and carried away to long distances. The cultivators, however, are more than compensated for by a splendid crop of peas. The land here not only gives a very heavy crop, but the peas grown here are the best in Bengal. The soil is a peculiar black clay, on which the *khaskhas* plant abounds, and which till very recently was full of wild roses.

The peas are sown here without any tillage whatever. As soon as the inundation water recedes and the ground is still soft, the seed is broadcasted at

the rate of 12 seers per bigha, and nothing else need be done till the middle of Chaitra, when the crop is ready for the harvest. The plants are plucked out by the root, kept in heaps for a few days, and then threshed out by being trodden down by the bullocks' feet.

The yield here amounts to so much as 7 to 8 maunds per bigha. This is double as much as is obtained in the best land elsewhere. The rent of the land here is also very low, namely, about 5 annas a bigha.

In other places, and especially when the soil is more or less sandy, the field requires to be ploughed two or three times before being sown.

112. KHESARI.—A good deal of this pulse is grown in the low lands of the district, and it supplies the principal *dâl* eaten by the people of the Moonshigunge subdivision.

*Soil.*—It suits the clay soil best, but may be grown almost on any soil.

*Tillage.*—It follows either the *aus* or the *aman* paddy. When grown after *aus*, the land is ploughed once or twice, and then the seed is sown at the rate of 3 seers per bigha. On the *aman* land no tillage is required, the seed being broadcasted on the standing crop while the ground is still soft.

| | |
|---|---|
| Time of sowing ... ... ... ... | Aswin-Kartik. |
| Time of reaping .. ... ... ... | Falgoon-Chaitra. |
| Yield per bigha ... ... ... ... | 3 maunds. |

The khesari straw is regarded as the best fodder for milking cows.

113. MUSKALAI.—*Varieties.*—There are two varieties of this pulse under cultivation in the Dacca district, one of which, having white seeds, is known as the *thikra*, and the other is called *muskalai* or simply *kalai*.

*Soil.*—It grows best in new alluvial loams. There are three ways of sowing this crop—

(*a*) It is sometimes sown on the standing *aman* paddy without any preparation

(*b*) The soft mud left on the receding of the inundation water also requires no tillage to grow *muskalai*.

(*c*) Lands of a firmer character, and which have no standing *aman* paddy on them, are ploughed about twice and sown with *muskalai*, 2¼ seers of seeds being broadcasted on a bigha of land.

| | |
|---|---|
| Time of sowing ... .. ... ... | Aswin-Kartik. |
| Harvest time ... ... ... ... | Magh. |
| Yield per bigha ... ... ... ... | 2 to 3 maunds. |

114. MOONG.—There are three varieties of *moong* grown here, namely, (1) *sona* or *swarna moong*, (2) *ghasi moong*, and (3) *ghora moong*.

(1) *Sona moong* has golden-coloured seeds of medium size.

(2) The seeds of *ghasi moong* are grass coloured and of medium size.

(3) The seeds of *ghora moong* are of a bright golden colour and of the largest size.

The first variety is most esteemed.

This crop is not much cultivated in the Dacca district. The only places where it is grown somewhat largely are some parts of the Manikgunge subdivision and the banks of the Brahmaputra.

*Moong* can be grown only on a rich sandy loam. The *moong* field must also be high and well drained, as too much moisture in the soil is most injurious to this crop.

*Tillage.*—*Moong* is never grown on unploughed land, but the field is always prepared by three or four ploughings and as many harrowings.

| | |
|---|---|
| Time of sowing ... ... | Aswin and beginning of Kartik. |
| Seed sown per bigha ... ... | 2 to 3 seers. |
| Yield per bigha ... ... | 30 seers to 1½ maund. |
| Time to harvest ... ... | Pous and Magh. |

115. DHAINCHE.—This leguminous plant is rather largely grown in some of the churs and other recently-formed alluvial lands of the district. The object of growing this crop here is two-fold—*first*, generally it is grown for the sake of the fuel it supplies, *dhainche* being one of the fastest growing plants known;

*second*, sometimes it is grown round a field as a protection for the crop within against cattle trespass, as well as against the strong currents of water that in some places pass through the paddy and other crops during the rains. No fibre is extracted from *dhainche* in the Dacca district.

*Tillage.*—The cultivation of the crop is exceedingly simple: one or two ploughings and one harrowing are all the tillage needed for it. The seeds are sown broadcast at the rate of 2¾ seers per bigha at the end of Baisakh or early in Jeith. The crop is cut in Kartik-Aghan. The yield per bigha is generally worth about Rs. 5, the cost hardly amounting to half as much.

116. SUNN.—*Sunn* is a crop of some importance on the dearahs of the Lakhya. "In 1806 the district produced 10,000 maunds of this article, and the total quantity purchased by the commercial residents in this and the neighbouring districts on account of the British Navy amounted in that year to 55,000 maunds. The quantity now raised is small, and is chiefly used in the manufacture of fishing nets" and ropes used in towing boats.

*Soil.*—The *doas* or loam possessed of a good retentive power is best for this crop, but it can also be grown in much lighter soil. It is generally grown on the banks of rivers, but sometimes also near jheels.

*Rotation.*—It generally comes after *aus* paddy.

*Tillage.*—As soon as the *aus* is off the ground, the land is repeatedly ploughed and harrowed till a clean fine tilth has been obtained. At the end of Aswin about 7 seers of seed is sown broadcast per bigha, and the sowing as well as the cultivation is finished by a ploughing and a harrowing. In Falgoon the plants are plucked up by the roots and tied into bundles after having the tops cut off and taken to the nearest river or jheel to rot. The rotting is completed in 8 to 10 days, when the bundles are one by one forcibly struck against the water several times, holding them once by the root end and once by the top end. The fibre being thus loosened, is easily gathered at the middle of the bundle, and is in that state exposed to the sun to dry. When quite dry it is separated from the stalks and made into bunks.

*Disease.*—Great damage is sometimes done to the *sunn crop* by insects. The yield is about 3 maunds per bigha. *Sunn* tops form an excellent fodder for working animals, and in some places they are pressed and made into a sort of hay, which is used when green fodder becomes scarce.

117. JUTE.—The tract of the district that grows most jute is bounded on the west by the Lakhya and the lower portion of the old channel of the Brahmaputra; on the north by the Brahmaputra, and on the east and south by the Meghna. Then comes a level tract of land to the east of Satura, which is rapidly growing into an important jute mart. Jute is also grown largely on the high lands of the Madhupur jungle and in the northern part of the Manikgunge subdivision. The part of the country that grows it least is the low land in the interior of the Harirampore, Nawabgunge and the Srinagar thanas, as well as the great peas-growing tract to the north-west of Sabhar. As regards the quality of the jute grown, the eastern part of the district, including the churs of the Meghna. ranks first.

The area occupied by jute in the Dacca district is, according to the Jute Forecast published by the Director of Agriculture, 170,000 acres or 253 square miles.

The average yield for the whole district is, I think, a little over 5 maunds. The yield, however, varies much in different parts of the district:—

| | Yield. |
|---|---|
| Brahmaputra chur ... ... ... ... | 5 to 10 maunds. |
| Meghna chur ... ... ... ... | 4 „ 7 „ |
| Moonshigunge ... ... ... ... | 4 „ 6 „ |
| Manikgunge ... ... ... ... | 3 „ 6 „ |
| High lands of Madhupur ... ... ... | 5 „ 7 „ |

The most important jute-exporting marts of the district are the following —

| | |
|---|---|
| Naraingunge. | Bayara. |
| Dacca. | Keranigunge. |
| Jaffergunge, | Paina. |
| Gheor. | Kaligunge. |
| Satura | Lakhpur. |

It should be noticed here that of the jute exported by Naraingunge not less than two-thirds come from the neighbouring districts of Mymensingh, Sylhet, and Tipperah.

Two different varieties of jute are under cultivation here, both of which belong to *C. capsularies* or the round-pod species. They differ from one another in colour. One of them, known as the Dhalsundar, is of a light green colour, but the colour of the stalk and twigs of the other is light red. The yield of the former is much superior to that of the other, both as regards quality and quantity. Compared with the white variety, the red jute is very little grown. The jute plant is known in the eastern part of the district by the name of *nailla* or *nalita*, a corruption of the Sanskrit *nadira*, and in the west by *pat*. The fibre is known all over the district as *pat* or *costa*.

It is difficult to say precisely when the cultivation of this crop was introduced into the district: ryots nearly a hundred years old say they have always seen it under cultivation. But there can be no doubt that formerly it was cultivated to a very limited extent, and that the plant known as *mesta* (*Hibiscus cannabinus*) was as much grown to supply fibres as the jute plant. It is only since the time of the cotton crisis created by the War of Secession that jute has come to be grown extensively for exportation. Before the export trade began the fibre was sold very cheap. A maund of it was then worth not more than 8 annas. In the western part of the district the ryots took to the cultivation of this crop to make up for the loss incurred by the extinction of the safflower industry.

*Land and soil.*—Jute is a very good accommodating crop, ranking in this respect next only to paddy. It grows on high lands, where for its water-supply it depends entirely on rain; on the dearahs, which always retain sufficient moisture for the growth of the plant; as well as on low lands, where during the rains from 1 to 4 feet of water accumulates. It can also be grown on all kinds of soils, but does best on loams rich in half-decayed vegetable matter. As regards climatic conditions, jute thrives best when the atmosphere is saturated with moisture and the temperature is high.

*Rotation.*—The ryots follow no fixed rotation with respect to the jute crop, any more than they do with respect to any other of their field crops; but they are fully aware of the fact that jute does better after a crop of pulse than after any other crop, and jute and pulse form a rotation in most parts of the district. In some places along the Arialkhan river an early crop of jute is often followed by *aman* paddy during the same season. In the best jute-growing villages, however, jute is always followed by jute without any intervening crop.

*Manure.*—In the high lands of the Madhupur jungle and along the old channel of the Brahmaputra jute fields are almost always manured with cow-dung and cow-dung ashes. In the Manikgunge subdivision a sort of green manuring is used by growing a crop of khesari (a pulse), and feeding it off the ground by holding cattle on it, and immediately after ploughing the field for jute. In localities where silt is deposited during the rains no manure is used, for in such places there is hardly any necessity of manuring the field; but whether any manure is applied to it or not, jute is everywhere regarded as an exhausting crop by the cultivators of the Dacca district.

*Tillage.*—The mode of cultivation followed is very much the same all over the district, excepting that in the great jute-growing tract between the Lakhya and the Meghna, the number of ploughings the fields receive is very much greater than anywhere else. Here from 10 to 12 ploughings are the general rule, but in other places 6 to 7 ploughings are considered sufficient. The land is repeatedly ploughed and harrowed till a deep and fine tilth is obtained. Where the land is somewhat clayey, the use of the plough and the ladder is not sufficient to get the field in condition, and the *intamugar* is also resorted to, which very much increases the cost of cultivation. The time of sowing is different in different parts of the district. In the churs of the Meghna, where a late sown crop is always liable to be flooded, the sowing is done so early as the beginning of Falgoon, while in the high lands of the Madhupur jungle it is delayed till the end of Baisakh. The seeds are sown broadcast at the rate of 2¼ seers per bigha. The sowing is preceded by a light ploughing, and finished by passing the ladder twice over the field. The

seed is sometimes sown in two lots, half of it being sown along the field, and the other half across it. This makes the distribution of the seeds more uniform, which is a point of much importance in case of the jute crop.

*After-treatment.*—The after-treatment somewhat differs in different parts of the district. In the west no operation intervenes the sowing and the weeding, but in the eastern part of the district the field is no less than three times harrowed with the rake before the weeding begins. The weeding is generally given when the plants are about half a cubit high. When the plants have grown to a height of from one to one-and-a-half cubit, they are carefully thinned. The thinning is a very important operation for the jute crop, for unless this is done carefully the plants become either sickly and stunted in growth on account of their being overcrowded, or branched and deficient in height owing to the distance between them being too great.

After they have attained full growth, the plants divide at the top into two or three branches and produce small yellow flowers. When the fruits become just visible, the crop is ready for the harvest. The plants are cut about two inches from the ground by the sickle. They are then made into bundles and the tops are taken off at the points where they bifurcate. When the fields have become inundated and there is sufficient water on it, the bundles are simply gathered together in a corner of it to rot, otherwise they are carried to the nearest pool of water. A number of bundles are put together in a heap, and over it the cut tops of the plants, and then a quantity of earth. The plants take from ten days to a month to rot. The rotting is delayed in current water, or when sufficient earth not having been placed over the bundles these are exposed to light, or by a fall of temperature. When the rotting is nearly finished, the stalks should be examined from time to time in order that the bundles may be removed and the fibres extracted just at the right moment, for over-rotting reduces the strength of the fibres and spoils their colour. The mode of extracting fibres varies accordingly as the fields are inundated or not. In the first case the plants are taken one by one and the fibres of each removed separately. In the other case a man standing waist-deep in the water takes a handful of plants at a time and holding them firmly by both hands breaks the stalks close to the lower end. He then removes the stalks of this portion, and wrapping the fibres thus obtained round the palm of his right hand removes the rest of the stalks by pushing them against the water. This plan is far more convenient and expeditious of the two, but it cannot be adopted for crops growing in inundated fields on account of the thick mass of adventitious roots that develop at the lower ends of the plants in this case. The fibres are then well washed in the water and dried in the sun for two or three days. When sufficiently dry they are made into *hatas*, each weighing about one quarter of a seer.

*Diseases, &c.*—Two insects do much injury to the jute crop. One of them, known as the *urchunga*, cuts the plants, while still young, close to the ground, and the other called *chhenga*, the caterpillar of a species of cut-worms, attacks the crop some time before the harvest, and often destroys whole fields.

*Cost of cultivation per bigha.*

| | Rs. | A. | P. |
|---|---|---|---|
| Manure ... ... ... ... | 1 | 0 | 0 |
| Ten ploughings ... ... ... ... | 2 | 12 | 0 |
| Two-and-a-half seers of seeds ... ... ... | 0 | 0 | 9 |
| Weeding, six men ... ... ... | 1 | 8 | 0 |
| Thinning, two-and-a-half men ... ... ... | 0 | 10 | 0 |
| Harvesting, eight men .. ... ... ... | 2 | 0 | 0 |
| Extracting fibres, eight men ... ... ... | 2 | 0 | 0 |
| Drying, one man ... ... ... ... | 0 | 4 | 0 |
| Rent ... ... ... ... ... | 1 | 8 | 0 |
| Total ... | 11 | 10 | 9 |

The yield may be put down at five maunds, the money value of which varies between Rs. 7-8 and Rs. 20.

118. COTTON.—Cotton was formerly very largely cultivated in the Dacca district, especially in that part of it which is situated between the Banar and the old channel of the Brahmaputra and in the neighbourhood of Rampal. One of the villages on the Banar is from the largeness of its cotton cultivation in

former times still known as Kapasia or the cotton village. The variety of cotton grown here was peculiar to the district, and has thus been described by Dr. Roxburgh in *Flora Indica*:—"The Dacca cotton is a variety of *gossypium herbaceum*, and differs from other varieties of this species in the following respects:—

1*st.*—In the plant being more erect with fewer branches and the lobes of the leaves more pointed.

2*nd.*—In the whole plant being tinged of a reddish colour, even the petioles and nerves of the leaves, and being less pubescent.

3*rd.*—In having the peduncles which support the flowers longer and the exterior margins of the petals tinged with red.

4*th.*—In the staple of the cotton being much longer, much finer, and much softer. It was from the produce of this particular variety of cotton that the finest Dacca muslins were made.

Formerly when it was more extensively cultivated than at present, there were different shades of quality observable in the staple, which either cannot now be distinguished, or have degenerated into one of inferior quality. They were known by the names of *phootee*, *norma* and *bairite*. The cotton of the present day, it is affirmed by the natives, is inferior to what it formerly was. The crops are less abundant, it is said, and the fibres, though apparently equally fine and soft, are shorter and more firmly adherent to the seed than the produce of former years.

Two crops are raised in the district. They are gathered in April and September, but the first yields the finest produce, and is one that is chiefly cultivated. The seeds which are used for sowing are carefully picked, and after having been dried in the sun are preserved in an earthen pot in which oil or ghee has been kept, and the vessel, with its mouth stopped up so as to exclude the external air, is hung up to the roof of the hut and over the spot where the fire is usually kindled. The high lands are selected for this crop, and are ploughed eight to twelve times up to September and October, when the seeds are sown. This is done in parallel rows distant about a cubit from each other, and before the seeds are dropped in the ground they are moistened with water. The cotton plant is liable to injury from hail-storms, heavy rain, and caterpillars. It impoverishes the soil, and the same field never produces successively more than two crops of good cotton. Formerly the ground for cotton was allowed to lie fallow every fourth year, and it appears to be owing to the neglect of this circumstance in the present day that the produce is now inferior in quality to that of former times. A good crop is estimated at eight maunds per bigha. The average proportion of seeds to the wool is about three-fourths, or 32 seers of the former in one maund, or 40 seers of the uncleaned cotton. The northern division of the district produces the best cotton, and in the situation, especially that portion of it bordering upon the Meghna and the Brahmaputra in Sunergong, Kapassia, Toke, and Junglebaree (Mymensingh), in which this article was chiefly cultivated in former times. So wrote Dr. Taylor in 1838. Since then the cultivation has still further declined, and it was with considerable difficulty that I succeeded in seeing one small field of cotton at a place called Turgaon on the Banar, about three miles up the police-station of Kapasia. The soil here is a mixture of the red clay and the red coarse sand of the Madhupur jungle. The sub-soil below two or three feet is more sandy. The land grows here paddy and cotton in alternate years. The variety of cotton under cultivation is known as *penchi kapas*, and resembles that described by Dr. Roxburgh, with the exception of the red tinge which is wanting in the petioles and nerves. The cultivation is not now done half so carefully as was the case at the time of Dr. Taylor. The field is prepared by two to four ploughings and as many harrowings. Furrows are then drawn a cubit apart, and in these furrows cotton seeds, previously moistened with dung-water, are dropped in thickly. When the plants come out they are thinned to a distance of a foot from one another. The after-cultivation consists in hoeing the space between the rows twice and, in years of excessive rainfall, even four times.

No manure is used. Dung is said to attract the white-ants, with which the whole neighbourhood is said to be infested. The seeds are sown in Jeith-Ashar,

and the crop is gathered in Aghan, the plants dying away almost immediately after. The yield is said to be very poor compared with what it was formerly. Little trouble is now taken to preserve seeds, which are simply put in a common earthen pot and stowed away in a corner of the house.

A little cotton is also grown near Rampal along with ginger and turmeric in the plantain fields. The cotton plants are allowed to grow at a distance of four-and-a-half feet from one another either way.

On the sides of the Banchera river a small quantity of cotton is grown by the Garos under the *jum* system of cultivation.

119. MUSTARD.—There are three different varieties of this oilseed under cultivation in the Dacca district:—1*st.* The maghi or the early mustard that is harvested in the month of Magh. The plants are large and the seed reddish black. 2*nd.* The rye or the white mustard. The plants are large and the seeds white in colour and of medium size. 3*rd.* The black mustard, the plants as well as the seeds of which are of the medium size.

1*st.*—The *maghi sarisha* is sown only in the dearah lands. The land is prepared by two or three ploughings and as many harrowings. About three seers of seed are sown broadcast over a bigha of land. The usual time for sowing is Kartik. The crop is harvested in Magh.

2*nd.*—The *rai*, or white mustard, is sometimes broadcasted on soft land without any previous preparation. The general practice, however, is to sow this variety of mustard and peas together in the same field. This very greatly benefits the peas, which are thus given a support to grow erect.

3*rd.*—The black mustard is a far more important crop than the preceding two varieties. It requires a good soil and a more careful tillage. It is grown in the older dearahs as well as on the high lands of the Madhupur jungle.

*Rotation.*—It generally follows the jute crop, but sometimes is also sown on land which was during the preceding rains occupied with aus paddy. The land is deeply stirred and thoroughly pulverized by repeated ploughings and harrowings. From six to ten ploughings and as many harrowings are generally given. The seed is sown broadcast at the end of Kartik at the rate of one-and-three-fourth seers per bigha. The sowing is preceded by a ploughing and followed by a ploughing and a harrowing. The crop is harvested in Falgoon-Chaitra. Yield per bigha varies between one and eight maunds.

120. RADISHES.—The places where this crop is most largely grown are the banks of the Ichhamati between Rajnagar and Ramkrishnadee.

*Varieties.*—The only variety of radishes under cultivation here is that having a pungent taste. The sweet radishes so largely grown in Western Bengal have not yet been introduced into the Dacca district.

*Soil.*—The only soil on which radishes can successfully be grown is a rich sandy loam. Sandy and clayey soils are both unsuited to this crop.

*Tillage.*—In the village of Rajnagar, which produces the best radishes, no other crop is grown in the radish fields excepting *kumar* (cucurbita pepo), which is sown along with this crop. The field is ploughed at intervals all the year round, giving altogether over 40 ploughings. By these repeated ploughings and harrowings the soil is stirred to a depth of about a foot, and an exceedingly fine tilth is obtained. The radish fields are here almost invariably manured with cowdung, cowdung ashes, and rotten paddy straw. To facilitate manuring, fields for this crop are generally selected close to *bhaoars*, or places where large herds of cattle are kept. One bigha of land gets the dung of 10 to 12 cattle for the whole year, or about 250 maunds—a quantity quite sufficient for growing a very heavy crop of potatoes. Those who have no cattle of their own get dung from other villages. The fields are sometimes manured in Baisakh, but the proper time for applying dung is the beginning of Aswin. The seeds are sown broadcast at the end of this month at the rate of about one and-a-quarter seer per bigha. The earlier the seed is put in, the better for the crop, for radishes never do well when sown late. The sowing is preceded by a ploughing and followed by a harrowing.

The field requires a weeding about a fortnight after the sowing, and when the plants have grown to a height of five to six inches, a hoeing is given with the small *kodali*, and at the same time the crop is thinned to one plant in about one square foot of ground. Seed of *kumra* are sometimes put in radish fields about four-and-a-half feet apart.

121. KALIJEERA.—A little of this crop is grown near the town of Dacca, but it is not a regular field crop of the district.

*Soil.*—It requires a loam with a fine texture, and such as remains cool in the months of Falgoon and Chaitra. Neither clayey nor sandy soil is at all suited to this crop.

*Rotation.*—It forms no regular rotation with any crop, but sometimes follows the paddy or the jute crop.

*Tillage.*—The straw of the previous crop is either burnt or gathered around the field, and the land repeatedly ploughed and harrowed to obtain as fine a tilth as possible. It is not necessary to plough the land deep for this crop, but the surface soil must be rendered as fine as dust. When clods are raised in the course of the ploughing, these are broken by means of the ladder or the *intamugur*.

At the end of Kartik or early in Aghan the seed is sown at the rate of three to four seers per bigha. The sowing is generally done in two lots—once along and once across the field. The sowing is preceded by a ploughing and followed by passing the ladder over the field once. Three days after the sowing, the field is again ploughed twice. The plants shoot out in a fortnight. In case it rains heavily and the surface soil cakes, the ground should be loosened by means of the harrow. When the plants are about six inches high they are weeded. Sometimes a second weeding has to be given. The crop is ready for the harvest in Chaitra.

*Diseases.*—Two insects of the names of *ghugra* and *shali* cut the plants just after germination. Considerable injury is sometimes done by hail-storms when the crop is about to ripen.

The yield is about three maunds per bigha.

121*a*. CAULIFLOWERS.—Are grown largely by ryots in the neighbourhood of Dacca in the direction of Demra. They are grown on high lands round the baris.

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## CHAPTER IV.—DAIRY.

122. Mention has already been made of the fact that formerly there was an abundant supply of fodder in the district and the whole country was full of *bathans* (sometimes called *bhaors*) or places where large herds of cattle, especially milking cows and buffaloes, used to be kept by the *goalas* or milkmen. No such *bathans* are now to be met with in Dacca, and to get a correct idea regarding the former state of things one has to visit the low country between Sylhet and Mymensingh, through which the Barak, Dhannu, and other tributaries of the Meghna find their way, and which abounds in *chars* only very recently formed or even in the course of formation. These *chars* are thickly covered with long coarse grasses and reeds on which thousands of cattle and buffaloes are kept in a semi-wild state. It is in one of these *chars* that the celebrated Dacca cheese is made from the milk of a very fine species of half-domesticated buffalo having horns some four feet in length.

As a rule, the goalas of the Dacca district keep very few milk cows now, and have to depend for their supply of milk on the cows kept by the cultivating classes, especially those settled in the newly-formed *chars*.

123. *Food of milk cows.*—In addition to what they can pick up on the grazing ground, the milk cows are given *dalghas*, *lataghas*, oilcake, *bhusi*, and boiled rice. Of these different fodders, *lataghas* is considered the best food for the cows. It increases the quantity and improves the quality of the milk. Mustard cake is not much used on account of its pungency, til cake being supposed to agree with the cows better.

124. *Quantity of milk.*—An ordinary country cow here does not generally give more than two seers of milk per diem, and the quantity never exceeds four seers. From an up-country cow kept here, so much as 10 seers of milk may even be obtained; but the milk of an up-country cow is not by any means so

rich as that of an indigenous cow, and the latter consumes proportionately a much smaller quantity of food, and has the additional advantage of being exceedingly hardy. A very large number of up-country cows of a fine breed are kept in the town of Dacca, but they are not much to be seen in the interior.

125. *Diseases of milk cows.*—The disease from which the milk cows generally suffer is the foot and-mouth disease, locally known as *aosha.* It seldom terminates fatally, but a loss of condition and a consequent diminution in the supply of milk is inevitable. The treatment that the *goalas* here generally adopt will appear very strange to a western veterinarian, but it is fairly efficient. A cow attacked by this disease is tethered in a corner of a pond or shallow pool of water, so that the feet of the animal may remain under water. Astringent lotions are also sometimes used, and lately kerosine-oil has come to be regarded as a good remedy. Along with other cattle, the milk cows also suffer from rinderpest, locally known as *mata.* This terrible disease broke out in an epidemic form in 1837 and 1870, and again in 1886, and carried off thousands of bullocks and cows. The appearance of this disease seems to be connected with an unusually high temperature, and the taking of immature fodder with a large quantity of water in it seems to be an aggravating circumstance.

126. *The different preparations of milk.*—The different preparations of milk forming the dairy produce of the district are—

(1) Dadhi.
(2) Nani.
(3) Makhan.
(4) Khir.
(5) Ghee, from—
  (*a*) Nani.
  (*b*) Makhan.
  (*c*) Shar.
  (*d*) Khir.
(6) Chhana.
(7) Cheese.

127. (1) *Dadhi.*—As soon as possible after the milk has been taken from the cow, it is passed through a sieve and placed in an earthen pan. The milk is at first very rapidly heated, but as soon as it begins to boil the heat is lowered and the milk made to evaporate slowly. When it has been reduced to about three-fourths or half its volume, it is put in earthen pots where *dadhi* is to be formed, or the fermentation is to take place. The fermentation takes place best in deep vessels with narrow mouths, but shallow vessels have a better look and are therefore generally used by the *goalas.* About five seers of boiled milk is placed in one vessel. When the milk has sufficiently cooled, a little *dadhi* is taken from the preceding day's preparation and mixed with a little of the milk in the vessel. For five seers of milk about an anna weight of *dadhi* will be required to bring about the necessary fermentation. To understand the method of preparation of *dadhi* of superior quality, we should remember that its formation depends on a fermentation of milk, and that milk undergoes a number of other fermentations besides that of *dadhi*, and that the particular fermentation it will undergo depends on the conditions under which this takes place. It is only when the milk is kept at a certain temperature, when only a certain quantity of *dadhi* of a particular degree of sourness is mixed with it, and when the extraneous germs of which the atmosphere is full are excluded from it, that the *dadhi* fermentation takes place properly.

(*a*) *Temperature.*—The fermentation takes place best between 70° and 80° Fahrenheit. In winter, therefore, the proper degree of warmth should be obtained artificially, and in the summer means should be adopted to reduce the temperature to the proper degree.

(*b*) *Exclusion of germs.*—The vessels should be covered by a thick cloth to exclude the extraneous germs floating in the air.

(*c*) *The dadhi added.*—The amount of it added must be in the proportion mentioned above, and it should be fresh. If nothing but sour *dadhi* be available, a little of this should be rubbed on the bottom of the vessel in which the fermentation is to take place, and then the hot milk poured over it.

Sugar, *batasha* (a preparation of sugar) and spices are sometimes added to the milk which is set to undergo the *dadhi* fermentation.

In summer the *dadhi* fermentation becomes complete in about six hours, but it takes a much longer time for its completion in winter. If kept longer, an acid fermentation takes place, which makes the preparation sour and spoils its flavour.

The *goalas* often mix water with the milk intended for the preparation of *dadhi*.

128. (2) *Nani.*—Nani is butter obtained from fresh milk or from milk that has been scalded. It requires a much longer churning to obtain butter from fresh milk, and the butter so obtained is not of so good a quality as when it is made from *dadhi*, but the *goalas* often resort to this method for the sake of the butter-milk which, in this case, may be made into *dadhi* or *khir* of inferior quality and easily sold.

129. (3) *Makhan.*—Makhan is butter obtained from *dadhi*. The butter-milk is in this case sold under the name of *ghol*. In obtaining butter from *dadhi* about half of its volume of water is mixed with the *dadhi* before working the churn.

130. (4) *Khir.*—Khir is thickened milk. The flavour of this preparation of the milk depends on (*a*) the quantity of milk boiled at a time, (*b*) the care with which the milk is stirred at the time of boiling, and (*c*) the nature of the heat applied. (*a*) To obtain *khir* as white as possible, and possessed of the best flavour, not more than half a seer of milk should be boiled at a time. (*b*) All the time the milk is boiling it should be stirred with a wooden rod. Some prefer to stir with a number of rods. (*c*) A strong and steady heat should be applied. Tamarind wood is considered the best fuel for this purpose. *Khir* of an inferior quality is sometimes made from fresh butter-milk.

131. (5) *Ghee.*—Ghee is melted butter. The quality of the ghee depends on that of the butter from which it is obtained. The butter may be the *nani*, or that obtained from fresh milk, the *makhan*, or that prepared from *dadhi*, or it may be obtained from cream or *khir*. By far the greater portion of the ghee that comes to the market is prepared from *makhan*.

(*a*) *Ghee from nani.*—The *nani* is melted and boiled in a pot till the solid matter that is thrown down turns red, when the contents of the pot are thrown over a cloth filter. The melted butter thus obtained is ghee. If the boiling is stopped before the solid matter has turned red, the ghee acquires a better flavour, but it soon turns rancid, and cannot be kept long.

(*b*) *Ghee from makhan*—Is obtained in the way described under (*a*).

(*c*) *Ghee from shar or cream.*—This method is often adopted by many poor householders. The cream that rises on the milk daily partaken by the family is removed and kept aside. When a sufficient quantity has been collected, it is beaten with the hand in a stone plate and then mixed with a little water, when the butter rises. This is collected and melted in the way described under (*a*).

(*d*) *Ghee from khir.*—Milk is boiled in a vessel till it becomes semi-solid. This is kept overnight, and early next morning it is treated exactly in the same way as *shar* is treated in order to obtain ghee from it. Instead of mixing water with the beaten *khir*, milk is sometimes used, and the butter-milk thus obtained is made into a *khir* of inferior quality. The ghee made from *khir* is said to be of very superior quality, but the quantity so prepared is exceedingly small.

132. (6) *Chhana.*—Chhana is obtained by pouring *dadhi*, lemon-juice or any other acid into boiling milk, and separating the curd thus formed from the whey. *Chhana* forms an ingredient of many of the sweetmeats partaken by the Hindus.

| | | | | | |
|---|---|---|---|---|---|
| 1 seer of milk will yield | | ... | ... | ... | ¾ seer *dadhi*. |
| Ditto | ditto | ... | ... | ... | ¼ ,, *chhana*. |
| Ditto | ditto | ... | ... | ... | 3 chittacks *khir*. |
| Ditto | ditto | ... | ... | ... | 1 chittack butter. |
| Ditto | ditto | ... | ... | ... | 3 kachhas ghee. |

133. (7) *Dacca cheese.*—The following is a description of the way cheese is made in the island of Panakona in the Barak river. Cheese is here made from fresh buffalo milk. As soon as the milk is taken from the buffalo, it is put in an earthen vessel and rennet is mixed with it at the rate of a seer to a maund of milk. About two hours after, the curd is broken with the hand and put in small quantities in shallow bamboo baskets known as *dalas*. Next day it is mixed with a little salt and repeatedly cut across with a knife, and each time the knife is passed through it the curd is pressed with the palm of the hand. This process is repeated for three consecutive days, and altogether 2½ seers of salt is used to a maund of curd. The cheese is then left to cure. This cheese is sent to Dacca, whence it is exported as Dacca cheese. A maund of milk gives 10 seers of cheese. The price of buffalo milk here is from Rs. 3-8 to Rs. 4 a maund. The whey is kept aside for a day or two, when the oily matter floating over it is removed and made into ghee, and the rest of it thrown away.

134. The churn the *goalas* use in obtaining *nani* and *makhan* is a simple piece of instrument, inexpensive but very fairly efficient. It consists of a strong earthen vessel with a narrow mouth in which works a bamboo rod, the end of which is split into four pieces and kept wide by two slips of bamboo. The vessel is put close to one of the house posts, to which are attached two hooks made of cane. The rod passes through these hooks and has its lower end put on the churn. The rod is worked by means of a strap attached to it midway between the hooks.

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## CHAPTER V.—PISCICULTURE, FISHES AND FISHERY.

135. *The fish supply.*—The district of Dacca is exceedingly rich in the variety as well as abundance of its fish-supply. The rivers, jheels, ponds and every sheet of water abound with fishes of various kinds, and fishes form an important item of the daily food of the people. As regards the question whether this supply is diminishing or not, there can be no doubt that the silting up of the jheels, especially in Western and Southern Dacca, has led to a great reduction in the fish-supply. The quantity available for consumption within the district, again, has very much diminished owing to a large amount of fish being daily sent to the Calcutta markets by the Eastern Bengal Railway. It has been further reduced, since the opening of the Dacca-Mymensingh Railway, owing to an additional quantity, but very much less than what is exported to Calcutta, being now sent to Mymensingh. The great increase of population, amounting to 1·42 per cent. per annum, has again caused a perceptible diminution in the portion falling to the share of each man. The breeding fish and the fry are destroyed here as in other parts of India, but the question as to how much of the reduction in the fish supply is due to this cause is difficult of solution, and on this point opinions differ and the evidence is of a conflicting nature. The conclusion I have come to is that in the Dacca district the reduction due to this cause is but slight when compared with the amount due to the contraction of water surfaces.

136. *Pisciculture.*—In parts of the Moonshigunge subdivision close to the Airal jheel, and in the low-lying marshy places to the east of that jheel, which at one time formed a part of it, but have now been more or less silted up, a method of pisciculture is practised which is partly artificial and partly natural. It is an imitation of what takes place in nature in all marshy places that are inundated during the rains. At the beginning of the rains, the fishes living in the deepest parts of the jheels, which always retain some water, leave these places and betake themselves to the adjoining rice-fields, now inundated and made continuous with the jheels. At the end of the rains, on the other hand, when the water in the paddy-fields becomes shallow and shallower every day, the fishes abandon the fields and again take refuge in the deepest parts of the jheels, where they pass the winter and the summer.

137. For the artificial culture of the fishes a site is selected close to a large low plain which is flooded during the rains, and is either covered with long grasses

and reeds, or cultivated and grown with long-stemmed paddy. The field is generally connected with rivers by small creeks, which serve as feeders as well as drains. At the beginning of the rains the water in these creeks either flows towards the plain or away from it, accordingly as the rivers are flooded early and before the rain has set in, or as the rain, having set in early, water is collected in the plain before the adjacent rivers are full. At the end of the rains these creeks always carry away the dirty, black and powerfully-smelling waters of the plains to the adjacent rivers. Close to one of these creeks is dug a tank, locally known as *danga*, about 200 cubits long and 80 to 100 cubits broad, and so deep that there may remain two or three cubits of water in it even in the dryest part of the summer season. The tank is embanked on all sides excepting at one or two points where it is connected with the creek described above. These openings, locally known as *jhans*, are at first only one-and-a-half or two cubits broad, but they are soon made broader by the force of the water entering into the tank. The embankments, however, are not very high and are inundated during the rains. The tank is finished by the end of Chaitra, and in the months of Aswin and Kartik it is covered by aquatic creepers brought from the jheel sides, which at this time require clearing for the transplantation of *boro* paddy. The *kalmi* creeper (Ipomœa repens is considered the best for this purpose. The *helencha* (Enhydra hingcha) is also good, but the *pana* (Salvinia imbricata.) is always avoided, as it decomposes and spoils the water, thus rendering the tank unfit for the habitation of fishes. The whole surface of the tank is covered with the creepers, the natural openings having been found sufficient to provide enough of breathing holes for the fishes.

As soon as the inundation water begins to subside, the fishes of the plain commence to take refuge in the tank. The *gajar* (Ophiocephalus marulius) and the *phali* (Mystus kapiral) are the first to enter into the tank. The *kai* (coius cobojas), *shail* (Ophiocephalus wrable), *jiyal* (Silurus singio) and *magur* (Macropterontus magur) come afterwards. As soon as a sufficient number of fishes have entered into the tank, the *jhans* are closed.

Some of the fishes mentioned above have the habit, whenever it rains, of leaving the tank and creeping over the land. They are in this way often caught by men and lost. Throughout the summer, therefore, whenever it rains, and especially when the rains and storms come together, and in the night-time, the tanks should be carefully watched to see that no fish leave it.

138. As soon as the plain is flooded during the following rainy season, the *jhans* are opened and fishes allowed to leave the tank and go to the inundated plain. This is absolutely necessary, for, if confined throughout the year in the tank, the fishes do not attain their proper size and become deficient in flavour. When the inundation subsides, the fishes come back to the tank, and unless caught on their way by men, very few fail to return. The fishes are caught during the next winter. This is done by a peculiar net, called the *chaba*, which consists of two parts, one of which is held perpendicularly, and the other is spread horizontally. A tank of the size mentioned above supplies from 40 to 100 maunds of fish, worth from 150 to 500 rupees. Some peculiarities of the three important fishes mentioned above are described below.

*Kai* (coius cobojas).—This fish does not live in rivers or current waters. The breeding season is *Chaitra-Baisakh*. It generally deposits its ova under mud, where they remain in a quiescent state till the commencement of the rains, when the fry are hatched out. The fish itself may remain a long time in a torpid state under mud. The *kai* may attain a length of 9 inches, weighing about ½lb. It is nutritious and considered very good eating.

*Magur*.—It does not live in rivers. The breeding season is *Baisakh-Jyaistha*. The eggs are deposited in holes made at the bottom of the jheel or tank. It may attain a length of one cubit, weighing more than a pound, but is generally caught when only ½lb in weight. It is exceedingly nutritious, but not quite so good eating as the *kai*.

*Shail*.—It does not live in rivers. The breeding season is *Baisakh-Jyaistha*. It deposits its eggs in holes, like the *magur*. The *shail* may attain a length of 1¼ cubit, weighing 2 to 3lb, but is generally caught when only ½lb in weight.

139. The following is a list of the most important fishes met with in the district :—

| | Vernacular names. | Scientific names. |
|---|---|---|
| 1. | Rohit, rui, rehu ... ... | Cyprinus rohita. |
| 2. | Katal, katla ... ... | „ catla. |
| 3. | Mirka, mrigel ... ... | „ mirgala. |
| 4. | Kalbaus, kalbosh ... ... | „ kalbasu. |
| 5. | Bhangna ... ... ... | „ bangana=Cy. bata=Cy. cura=Cy. reba. |
| 6. | Elang ... ... ... | „ Elenga=Cy. rasbora. |
| 7. | Dhura ... ... | „ dhura. |
| 8. | Chela ... ... ... | „ bacaila. |
| 9. | Maurulla ... ... ... | „ mourulla. |
| 10. | Punti ... ... ... | „ puntio. |
| 11. | Kanta punti ; when grown large, sarpunti | „ sarana. |
| 12. | Titpunti ... ... ... | „ ticto. |
| 13. | Bhole, bhola ... ... ... | „ bhola. |
| 14. | Phesa ... ... . | Clupea phasa. |
| 15. | Ilsha, ilish .. .. ... | Clupandon ilisha. |
| 16. | Chapla, khayra ... ... | „ cortius. |
| 17. | Bilsha ... ... ... | „ manmina. |
| 18. | Phali, phalui ... ... | Mystus kapiral. |
| 19. | Chital ... ... .. | „ chitala. |
| 20. | Magur ... ... ... | Macropterontus magur. |
| 21. | Jhagur ... .. ... | „ jhagur. |
| 22. | Silanda ; when grown large, Dhain ... | Pimelodus silondia. |
| 23. | Pangas ... ... ... | „ pangasius. |
| 24. | Ar ... ... ... | „ arius. |
| 25. | Baghar ... ... ... | „ bagarius. |
| 26. | Bacha ... ... ... | „ vacha. |
| 27. | Tengra ... ... ... | „ carcio |
| 28. | Golsha ... ... .. | „ golsha. |
| 29. | Rita . ... ... | „ rita |
| 30. | Ghagot ... . . ... | „ gagata. |
| 31. | Batashi ... ... ... | „ batashia. |
| 32. | Jiyal, singi .. ... ... | Silurus singio. |
| 33. | Boal ... ... ... | „ boal. |
| 34. | Ghaura ... ... | „ garua. |
| 35. | Pabda, papta ... ... ... | „ pabo. |
| 36. | Kani pabda ... ... ... | „ canio. |
| 37. | Khalla, kharsul ... ... | Mugil carsula. |
| 38. | Chanda ... ... ... | Chanda phula. |
| 39. | Ranga chanda .. ... | „ ranga. |
| 40. | Gajar ... ... ... | Ophiocephalus marulius. |
| 41. | Shail ... ... ... | „ wrable. |
| 42. | Lata ... ... ... | „ lata. |
| 43. | Cheng .. ... ... | „ gachua. |
| 44. | Kai ... ... ... | Coius cobojas. |
| 45. | Bheda ... ... ... | „ nadus. |
| 46. | Bhetki, koral .. ... ... | „ vacti. |
| 47. | Bam .. ... ... | Macrognathus armatus. |
| 48. | Tarabam .. ... ... | „ aculeatus. |
| 49. | Pankal ... ... ... | „ pancalus. |
| 50. | Khalisa ... ... | Trichopodus colisa. |
| 51. | Baila, bele ... ... ... | Gobius giuris. |
| 52. | Tapaswi ... ... ... | Polynenus risua. |
| 53. | Kankila ... ... .. | Esox cancila. |
| 54. | Tepa ... | Tetrodon tepa. |
| 55. | Katkatia ... ... ... | „ cutcutia. |
| 56. | Patka ... ... ... | „ patoca. |
| 57. | Kajuli ... ... ... | Malapterurus coila. |
| 58. | Kuchia ... ... .. | Unibranchapertura cuchia. |

Of the crustacean order, shrimps, prawn, &c., are very common.

140. *Fishery ducs.*—"A duty is levied on fishermen in all rivers and other running water in this district, and is called jalkar. At the time of fixing the Tuxeom jumma, this duty was assigned to some of the proprietors of contiguous lands. Hence it comes and does now form a part of estate, and is bought and sold as such. The fisherman enters into a regular engagement with the proprietor, and pays according to the size of his boat or the number of men required to man it." Only a few of the fisheries belong to the Government,

and some portions of the Meghna are public fisheries. The following is a list of the Government fisheries in the district of Dacca :—

*A.—Entirely fishery mehal.*

| No. of mehal. | Name of mehal. | Sudder jumma. | | | | |
|---|---|---|---|---|---|---|
| | | Rs. | A. | P. | | |
| 9147 | Jalkar Charigao Naraniganga ... ... | 371 | 0 | 0 | | |
| 10037 | ,, Pergunnah Rajnagar ... ... | 100 | 12 | 4¾ | | Permanently settled. |
| 8678 | ,, Nayanadi Rathkhola ... ... | 561 | 0 | 0 | | |
| 9528 | ,, Lakhya ... ... ... | 182 | 0 | 0 | | |
| 9529 | ,, Bánár ... ... ... | 12 | 0 | 0 | | |
| 9429 | ,, Haridhoá ... ... ... | 31 | 0 | 0 | | |
| 8377 | ,, Khodadadpur ... ... ... | 200 | 0 | 0 | | |
| 8671 | ,, Ganga Málonga ... ... ... | 39 | 1 | 7¼ | | Ditto. |
| 8873 | ,, Ditto .. ... .. | 89 | 1 | 6 | | Ditto. |
| 4378 | ,, Shaha Golam Mendi ... .. | 192 | 7 | 5¾ | | Ditto. |

*B.—Mehals the greater portion of which is jalkar.*

| No. of mehal. | Name of mehal. | Sudder jumma. | | | |
|---|---|---|---|---|---|
| | | Rs. | A. | P. | |
| 8244 | Taluk Haru Darpa Narayan, Jalkar Nadi Boori-ganga. | 381 | 0 | 0 | Permanently settled. |
| 9122 | Taluk Deboo Syam Doyal Manjhee, Jalkar Ganga Malonga. | 40 | 0 | 0 | Ditto. |
| 9121 | Deboo Syam Doyal Manjhi, Taluk Jalkar Tilak Bhadra, Jalkar Narainganga. | 15 | 0 | 0 | Ditto. |
| 2734 | Amandiram Dás ... ... ... | 9 | 9 | 7 | Ditto. |
| 7336 | Taluk Behary Dás ... ... ... | 19 | 0 | 0 | Ditto. |
| 5896 | Baghmara Kásimpur ... ... ... | 25 | 7 | 11 | Ditto. |
| 8054 | Dihi Bhagalpur Jalkar Bangsha ... ... | 114 | 0 | 0 | Ditto. |

140*a*. In jheels forming private jalkar mehals the public have the right of fishing with the rod and the line, and, in navigable rivers, with these contrivances as well as with fixed traps (*chai*). In the Fishery Act lately passed by the Bengal Council a great distinction has been made between the use of the rod and the line and that of fixed traps in navigable rivers other than public fisheries. In section 3 of the Act the right of the public to use the line and the rod has been reserved expressly; but their right, if they have any, of fishing with traps can only be protected by proving the existence of such a right, the burden of the proof lying on the public claiming any such right. Unless, therefore, the executive officers should think it their duty to look after this right, there is every chance of its being lost to the public. History tells us that even in civilized countries the public is unable to protect such of its rights and privileges as interfere with the interest of men of influence and position, unless specially aided by Government. The subject is of some interest as regards the eastern districts, for here the fish caught by the ryots in jheels, rivers and other waters forms an important item of their daily food.

In many places on one or two days in the year, *e.g.* the last day of the month of Pous, the public are allowed to fish in private fisheries other than tanks and ponds.

## CHAPTER VI.—Land Tenures, &c.

141. No history, nor even tradition, exists that can throw any light as to what system of land tenure existed in the district before the Mahomedan conquest. We cannot say whether any system of village community, so peculiar to Upper and Southern India, exsited also in this part of the country; but considering that, excepting the portion included in the Madhupur jungle, the district is of comparatively recent origin, the probability is that it did not do so.

142. When the Mahomedan conquerors took possession of the district, they appointed officers removable at will to collect the Government revenue from the cultivators, retaining for their services any surplus that they were able to exact. These officers were called zemindars, and, besides the duty of collecting revenue, they exercised the office of Magistrates or Justices of Peace, and were liable for the restitution of any property that happened to be stolen within their respective jurisdictions. Many of the zemindars were allowed to hold lands exempt from the Government revenue on condition of their furnishing men and boats to oppose the Mugs in their incursions into the district, or even of going in person on expeditions against these invaders.

143. Prior to the permanent settlement the zemindars of the Dacca district were in very bad circumstances. Mr. Day, the Collector of Dacca, wrote in 1788 that "there was not a man of wealth or credit among them at that time." Whatever might have been the case in other parts of Bengal, there can be no doubt that the zemindars of the Dacca district had no proprietary rights on the land. They were mere tehsildars of the Government revenue with more or less local influence. It was the decennial settlement, afterwards declared permanent, that created the present class of zemindars with vested rights on the land, and turned men who were simply tehsildars of revenue into real proprietors of the land. The decennial settlement was commenced in the district in 1791 and completed in 1799.

Dr. Taylor.

144. There are no large landed estates in the district. The largest pays an annual revenue of less than Rs. 15,000. The whole of the landed property of the district has been divided into an immense number of taluks of various grades, many of which pay revenue direct to Government and are now virtually independent estates.

145. The following is a list of the estates and tenures existing in the district, arranged in the way proposed by Mr. O'Donnell for the revised edition of Dr. Hunter's Statistical Account of Bengal:—

I. Estates-in-chief—

(*i*) Estates the unalienated property of Government—

(*a*) Resumed lakhiraj ...
(*b*) Purchased estates ...
(*c*) Alluvial accretions ...
(*d*) Islands ...
(*e*) Other khas mehals ...
} Khas mehals.

(*ii*) Settled estates paying revenue to Government—

(*a*) Permanently settled—Zemindari, kharija hazuri taluk.
(*b*) Temporarily settled—Khas ijara.

(*iii*) Revenue-free estates—

(*a*) Redeemed.
(*b*) Religious foundation—Devottar.
(*c*) Charitable foundation—Brahmottar.
(*d*) Service estates—Lakhiraj.

II. Subordinate tenures—

(*i*) Of the first degree—

(*a*) Hereditary and transferable—

At a fixed rent—Samilat, putni, sikimi, mirash, mushkasi.
At a fluctuating rent—Haola.

(*b*) Hereditary, but not transferable—

At a fixed rent—Bandobasti, kayemi.

(*c*) Temporary, but transferable—Ijara.

(*ii*) Of the second degree—

(*a*) Hereditary and transferable—

At a fixed rent—Dar patni, dar mirash, nim haola.

(*b*) Temporary—Dar ijara.

III. Rent-free tenures—

(*i*) Religious foundation—
Hindu—Devottar, brahmottar.
Mahomedan—Chiragan.

(*ii*) Charitable—
Hindu—Bhogottar.

(*iii*) Service—
(*a*) Held by zemindars' servants—Paikan.
(*b*) Held by personal servants—Naffaran, chakran, mahatran.

146. The following is a brief account of some of the tenures mentioned above:—

(1) *Khas mehals.*—All estates of which the Government is the proprietor are called khas mehals. Of these, some are managed directly by the Government, and others have been temporarily leased. The former may be called the khas mehals proper, and the latter khas ijaras. A list of khas mehals in the district is given in the appendix.

(2) *The kharija hazuri taluks and samilat taluks.*—The taluks existing at the time of the permanent settlement were divided into two classes—the kharija taluk and the samilat taluk. The kharija taluks were separated from the zemindaries and made independent estates paying revenue direct to the Government; the samilat taluks remained as subordinate tenures dependent on the zemindaries in which they were included.

(3) Revenue-free estates are of two kinds—(*a*) estates of which the revenue has been redeemed under the Act; (*b*) lakhiraj estates and service tenures are estates under a badshahi or zemindari grant declared to be valid by Regulation XIX of 1793. Of the zemindari grant the land is *devottar* when it is assigned for the worship of the gods, and *brahmottar* when the assignment has been made for the support of Brahmans.

(4) The putni tenures are tenures created under Regulation VIII of 1819. A putni of the second degree is a dar putni.

(5) *Sikimi tenures.*—The sikimi tenures existing from the time of the permanent settlement are hereditary and transferable. By the conditions of the original deed creating the tenure, the rent is generally fixed, but in a few cases there is no provision prohibiting enhancement of rent. The local custom is, however, against the enhancement.

(6) *Mirash.*—It is very much the same as the sikimi tenure, but created after the permanent settlement. A mirash of the second degree is a dar mirash.

(7) A *haola* is a taluk created for the reclamation of jungle land. It is heritable and transferable, but the rent may be enhanced. A haola created by a haoladar is a nim haola.

(8) *Bandubasti.*—This tenure is generally created when a person applies to a zemindar for a piece of land to build a house on it, or a common ryot wants to dig a tank, or when a grant is made for the reclamation of jungle land. It can be inherited, but not transferred by sale or gift. In some cases the zemindar can resume the land when it is used for any purpose other than what is mentioned in the deed creating the tenure.

(9) *Mushkasi*—Is a tenure held immediately under a zemindar at a fixed rent. It is hereditary, but not transferable by sale or gift.

(10) *Bhogottar*—Is hereditary, but not otherwise transferable.

147. The different classes of ryots in the Dacca district are:—

(*a*) *The utbandi ryots or the tenants-at-will.*—Many of the cultivators of the newly-formed chars and dearahs of the Padma, Jenai, and the Dhaleswari belong to this class.

(*b*) *Ryots holding at a fixed rent.*—There are more of these ryots in the Moonshigunge subdivision than in any other part of the

district; but compared with other ryots the number of this class of ryots is extremely limited.

(c) *Occupancy ryots.*—Over 90 per cent. of the ryots of the district have acquired the right of occupancy under the Tenancy Act, and the number of cases in which the ryots have been unlawfully ejected by their landlords are not many, but yet, until after a cadastral survey has been made and a record of rights prepared, and the occupancy right of each of the ryots be authoritatively declared by the Government, I do not think the ryots will be able to enjoy their right and derive full benefit from it when harassed by a powerful zemindar. The zemindar will let them occupy the land as long as they are obedient to him, willing to pay *tahari* or collection fees to his servants, give him presents on the occasion of his children's marriages or of his visit to the zemindari, or when he has obtained any of the honourable titles it has become customary now to confer on zemindars for any liberality shown by them, they will pay him more than what he has paid for such titles. But let them only once disobey him, and he is, under one pretext or another, sure to treat them as if the Tenancy Act had not been passed or were a mere dead-letter. In one large pergunnah, where the ryots with their own labour and at their own expense have brought under cultivation land that was overrun with jungle and infested with tigers, wolves and other beasts of prey, the landlord as well as the cultivators are under the impression that the ryots there are mere tenants-at will. The manager of the zemindar, a man of intelligence and education, instead of concealing from me this attempt on the part of the zemindar to deprive the ryots of their just and lawful rights, tried to prove that it is to the benefit of the cultivators themselves that they should be mere tenants-at-will. The ryots, on the other hand, justly complained that they can effect no improvement of the land because they have no permanent interest in it. It was in a village included in this zemindari that so lately as 1886-87 the zemindar compelled some hundreds of Christian ryots to enter into a contract with respect to land they have been cultivating for half a century or so, one of the conditions of which is that, if required for the zemindar's own use, they shall have to vacate the land without any compensation.

(d) *The under-ryots.*—The ryots' holdings are sometimes sublet, generally from year to year, but in some instances also on permanent lease. Such ryots are few in number.

148. *Some incidents of occupancy right.*

(a) *Right to transfer occupancy rights.*—As far as I can ascertain from personal enquiry, the ryots of the Dacca district as a rule do not possess the right of transferring their occupancy holdings by sale or gift. No such rights, either expressed or customary, existed before the passing of the Tenancy Act, and the few instances in which sales of occupancy rights have been effected after the passing of this Act have not been recognized by the zemindars.

(b) *Right to cut down fruit trees.*—The ryots of the Dacca district also do not possess the right of cutting down fruit and valuable timber trees planted by themselves, by the zemindars or by the previous occupiers of the holding, or grown naturally, without the previous permission of the zemindar.

149. *Ryots' holdings.*—The size of the ryots' holdings varies in different parts of the district. It is smallest in the interior of the Moonshigunge subdivision and largest towards the north-east of the district. The holding is also of more than average size in the great pea-growing tract to the north-west of Sabhar. Taking the whole district into consideration, the average may be put down at 15 bighas. In order to prevent misunderstanding it is necessary to state here that the word holding has been used by me in a sense different from its meaning in the Tenancy Act. By the term holding, or more accurately agricultural holding, I mean the whole of the agricultural land held by a cultivator's family, whether the land belongs to one or more mehals, and whether

it be the subject of one or more tenancies. The necessity of using the term in this peculiar sense arises from the fact that a very erroneous opinion has been formed about the condition of the cultivating classes by confounding a ryot's holding as used in the ordinary sense with the whole of the land owned by a cultivator's household.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| At Tangi the size of the holding varies from 7 to 48 bighas. | | | | | | | |
| „ Pubal it | varies | from | 6 | bighas | to | 12 | bigh |
| „ Joydebpur | „ | „ | 2 | „ | to | 100 | „ |
| „ Kaligunge | „ | „ | 2 | „ | to | 10 | „ |
| „ Bandakhola | „ | „ | 10 | „ | to | 24 | „ |
| „ Kaoraid | „ | „ | 8 | „ | to | 50 | „ |
| „ Toke | „ | „ | 4 | „ | to | 24 | „ |
| „ Belabo | „ | „ | 10 | „ | to | 24 | „ |
| „ Narsingdee | „ | „ | 8 | „ | to | 64 | „ |
| „ Atti | „ | „ | 10 | „ | to | 24 | „ |
| „ Manikgunge | „ | „ | 10 | „ | to | 50 | „ |
| „ Moonshigunge | „ | „ | 3 | „ | to | 20 | „ |
| „ Joypur | „ | „ | 15 | „ | to | 100 | „ |

The largest holdings mentioned in each place are possessed by very few ryots.

150. *Rent-rates.*—The rent rates differ in different parts of the district. They are highest near the city of Dacca and in some parts of the Moonshigunge subdivision, and lowest in the Manickgunge subdivision. The fact that the rent-rates within the Madhupur area are pretty high is a conclusive proof of the great resources of this much-neglected and much-abused place. The rent-rates are generally determined by the demand for land, and of course are dependent on the position of the place (its proximity to towns, markets, and rivers), the character of the soil (its capability to grow different crops, the relative cost of cultivation, and the money value of the outturn of these crops), and similar factors. Generally speaking, the rent-rates of the Dacca district are low in comparison with that of most other districts in Bengal. The low rates of rents the ryots owe not to the landlords, but to the Government. At the time of the decennial settlement, afterwards declared permanent, a considerable portion of the district was either covered with jungle or occupied with jheels: the latter was especially the case with the part of the country formerly known as Dacca-Jelalpore, and now included in the Manikgunge subdivision; and as a consequence the settlements were made at exceedingly low revenues. This liberality on the part of the Government has benefited the landlords and the ryots alike.

151. The following figures will show that, though the rent-rates are comparatively low, the gross rental of the Dacca district bears a much higher proportion to the Government revenue than it does in most other districts of Bengal:—

| Names of districts. | Gross rental. | Revenue. | The number of times the gross rental is of the revenue. |
|---|---|---|---|
| | Rs. | Rs. | |
| Burdwan ... . ... | 70,11,773·5 | 30,39,195 | 2·30 |
| Bankoora ... ... .. | 16,49,414·5 | 4,57,901 | 3·60 |
| Beerbhoom ... ... ... | 23,29,547·5 | 10,01,591 | 2·32 |
| Midnapore .. ... .. | 57,24,117·5 | 24,23,531 | 2·36 |
| Hooghly ... ... ... | 40,10,528·5 | 13,44,417 | 2·90 |
| 24-Pergunnahs ... ... ... | 44,39,761·5 | 15,80,963 | 2·80 |
| Nuddea ... ... ... | 24,57,392·5 | 8,86,921 | 2·77 |
| Jessore ... ... ... | 33,84,982 | 8,58,540 | 3·94 |
| Moorshedabad ... ... ... | 25,44,030 | 10,68,988 | 2·37 |
| Rajshahye ... ... ... | 29,37,359 | 8,97,502 | 3·27 |
| Bogra ... ... .. | 16,76,234 | 4,88,498 | 3·43 |
| Pubna .. ... ... | 16,97,260 | 3,88,120 | 4·37 |
| Dinagepore ... ... ... | 34,18,883 | 16,47,846 | 2·07 |
| Rungpore ... ... ... | 46,13,319·5 | 10,13,617 | 4·55 |
| Dacca ... . .. | 24,93,234·5 | 5,00,005 | 4·98 |
| Furreedpore ... ... ... | 20,72,451·5 | 5,60,967 | 3·69 |
| Backergunge ... ... ... | 53,75,834 | 14,79,188 | 3·63 |
| Mymensingh ... ... .. | 55,44,292 | 8,52,840 | 6·50 |
| Tipperah ... . ... . | 36,48,788·5 | 10,35,913 | 3·52 |

151*a*. Assuming that at the time of the permanent settlement the landlords were allowed 10 per cent. of the gross rental as the collection fee (*saliana*) and 10 per cent. as proprietary allowance, we find that the gross rental of the district has increased by 415 per cent. since the permanent settlement. Of this increase about one-third is probably due to enhancement of rent, and the remainder to extension of cultivation.

152. *Rent-rates in different parts of the district*—

| Names of Places. | Rent-rates. |
|---|---|
| 1. Near Dacca ... ... ... ... | Rs. 6 per bigha. |
| 2 Mirpur (boro land) ... ... ... | „ 2 to Rs. 4-8 per bigha. |
| 3. Rampal ... .. ... ... | „ 3 per bigha. |
| 4. Kasimpur pergunnah ... ... ... | As. 8 to Rs. 2 |
| 5. Bhawal pergunnah— | |
| (*a*) *Bhiti*— | |
| (1) *Bastu* or the homestead land, generally ... | Rs. 2 per bigha. |
| (2) *Palan*, *i.e.* land round the ryots' huts on which plantains, jack-trees, and mangoes are grown ... .. ... | As. 8 to Re. 1-4 per bigha. |
| (3) *Chola* or land round the *palan* on which mustard, jute, and *karela* are grown | „ 12 to „ 1-8 „ |
| (4) *Chhatpalan*, *i.e.* land near the homesteads covered with jungle on which cows may graze ... ... ... | „ 4 to As. 12 „ |
| (*b*) *Nal* or arable land— | |
| (1) *Barsar*, *i.e* land which is inundated and on which aman may be grown— | |
| *Purdar*, *i.e.* 1st class ... ... | Re. 1-2 to Re. 1-8 „ |
| *Kamdar*, *i.e.* 2nd class ... ... | „ 1 to „ 1-4 „ |
| *Sedar*, *i.e.* 3rd class ... ... | As. 12 to „ 1 „ |
| (2) *Khama*, *i.e.* land where less water accumulates in the rainy season than in (1)— | |
| *Purdar*, *i.e.* 1st class ... ... | Re. 1-4 per bigha. |
| *Kamdar*, *i.e.* 2nd class ... ... | „ 1 „ |
| *Sedar*, *i.e.* 3rd class ... ... | As. 13 to As. 14 „ |
| (3) *Tati*, *i.e.* land higher than *khama*— | |
| *Purdar*, *i.e.* 1st class ... ... | Re. 1 per bigha. |
| *Kamdar*, *i.e.* 2nd class ... ... | As. 13 to As. 14 „ |
| *Sedar*, *i.e.* 3rd class ... ... | „ 10 per bigha. |
| (4) *Roaicha*, *i.e.* high land which is not inundated, but on which rain water collects and on which transplanted paddy may be grown— | |
| *Purdar*, *i.e.* 1st class ... ... | Re. 1-4 to Rs. 2-8 „ |
| *Kamdar*, *i.e.* 2nd class ... ... | As. 14 to Re. 1-2 „ |
| *Sedar*, *i.e.* 3rd class ... ... | „ 12 to „ 1 „ |
| (5) *Aush* ... ... ... | „ 14 to „ 1-4 „ |
| (6) *Boro* ... ... ... | Re. 1 to „ 1-8 „ |
| 6. Kaligunge ... ... ... ... | As. 10 to „ 1-8 „ |
| 7. Bandakhola .. .. ... ... | Re. 1-12 to Rs. 2 „ |
| 8. Bagia ... ... ... ... | As. 12 to Re. 1-8 „ |
| 9. Kaoraid ... ... ... ... | „ 8 to „ 1-8 „ |
| 10. Toke ... ... ... ... | „ 12 to Rs. 2 „ |
| 11. Aralia ... . ... .. | Re. 1-2 to „ 2-4 „ |
| 12. Oojilabo ... ... ... ... | Re. 1 to Re. 1-8 „ |
| 13. Narsingdee ... ... ... ... | As. 9 to Re. 1 „ |
| 14. Dooni Gaon ... ... ... ... | Re. 1-4 per bigha. |
| 15. Teota ... ... ... ... | As. 8 per bigha. |
| 16. Maniokgunge ... ... ... ... | „ 7 to As. 8 „ |
| 17. Kaliakur ... ... ... ... | Re. 1-2 to Re. 1-10 „ |
| 18 Baghair ... ... ... ... | As. 8-6 to As. 10-6 „ |
| 19. Patali (Moonshigunge) ... ... ... | Rs. 3-8 to Rs. 4 „ |
| 20. Baruikhali ... ... ... ... | Re. 1-8 to „ 3 „ |

## CHAPTER VII.—Roads and Communications.

153. *Railways.*—A line of State Railway on the metre-gauge has been opened, connecting Naraingunge with Mymensingh *viâ* the city of Dacca. The part of it within Dacca is 52 miles in length, and has the following stations:—

| Stations. | Distance in miles from Naraingunge. |
|---|---|
| 1. Naraingunge ... ... ... ... | ... |
| 2. Hazigunge ... ... ... ... | 1 |
| 3. Dolaigunge ... ... ... | 8 |
| 4. Dacca ... ... ... ... | 10 |
| 5. Tangi ... .. ... ... | 23 |
| 6. Joydebpur ... ... ... ... | 30 |
| 7. Sripur ... ... ... ... | 44 |
| 8. Kaoraid ... .. ... ... | 52 |

The greater portion of the line passes through a part of the country scarcely populated, in most part covered with jungle, and that has very little chance of being opened up. In the whole of Bengal I do not think there is another line of railway, either State or guaranteed, the course of which would appear to be so ill-chosen as this. The object of the line was to open out Mymensingh quite as well as Dacca. The line takes the shortest course, as it was thought unwise to follow the river, where it would have to contend with the boat traffic.

154. *Steamer lines*—

(*a*) *Despatch steamer.*—There is a daily despatch steamer service between Goalundo and Naraingunge.

(*b*) The mail steamer of Sylhet leaves Naraingunge and Fenchugunge every day.

(*c*) There is a weekly steamer service between Naraingunge and Goalundo conveying goods.

(*d*) The goods steamers running between Cachar, Naraingunge, and Calcutta also take passengers.

(*e*) A steam ferry has been established between Moonshigunge and Naraingunge.

155. *Artificial water-courses*—

(*a*) The Taltala khal.

(*b*) The Dulai khal.

(*c*) The Moonshigunge khal.

The Taltala khal is said to have been dug by one of the sons of Raja Rajbullab to facilitate communication between Rajnagar and Dacca. This water-course extends from Bahar on the Padma to Taltala on the Dhaleswari, but has now been allowed to silt up so that it is only open during four months of the year for boats. It effects a saving of 20 or 25 miles on the outer route between Barisal and Dacca, besides avoiding the somewhat perilous navigation of the large rivers.

The Dulai khal is a short cutting of about four miles, and unites the waters of the Balu and the Booriganga rivers. It shortens the communication between Mymensingh and Dacca by about 22 miles, but is only open for about seven months of the year. Government has spent about Rs. 25,000 on this work, and the yearly profit, after paying for cost of collection, amounts to about Rs. 5,000. If it could be kept open all the year, the receipts of course would be much larger. It was opened on the 4th May 1864, and the levy of tolls commenced from April 1867. The toll levied is at the rate of annas 2 per 100 maunds of tonnage on all boats of 50 maunds burden or upwards, and the rate on all boats under 50 maunds of tonnage is 6 pies each. The canal is intended to meet the requirements of the traffic to and from the eastern districts. It runs through low marshy country, and no villages of any importance exist on its banks.

The Moonshigunge khal is a short cutting about a mile in length from the subdivisional kutchery to the Dhaleswari river. It was cut on the occasion of the Queen's Jubilee, and is intended to facilitate communication by boat between the river and the Moonshigunge bazar.

156. *Passenger boats.*—There are lines of country-boats that carry passengers and run regularly between different parts of the district. These are

locally known as *Jahena* boats, and the following is a list of the most important of them :—

(*a*) Running between Dacca and Manikgunge.
(*b*) ,, ,, ,, ,, Dhamroy.
(*c*) ,, ,, ,, ,, Taltala.
(*d*) ,, ,, ,, ,, Bahar.
(*e*) ,, ,, ,, ,, Lohagang.
(*f*) ,, ,, ,, ,, Srinagar.
(*g*) ,, ,, ,, ,, Kalakopa.
(*h*) ,, ,, Naraingunge and Kaligunge.
(*i*) ,, ,, Dacca and Nawabgunge.
(*j*) ,, ,, ,, ,, Hoshnabad.

157. *Roads.*—There are only a few roads in the district, and of these only one single road, eight miles in length, has been metalled. The fact is, the rivers are the highways of the district for men as well as articles of trade, and the boats are almost the only conveyance. In the rainy season the whole district is inundated to such an extent that almost every part of the country becomes accessible by boats, and even during the dryest part of the year there is hardly a single place to be found that is not within 15 miles of a navigable river.

The following is a list of the roads of the district :—

| | Names of Roads. | Length in miles. | Important places through which it passes. | Metalled or not. | Trees planted on the sides or not. |
|---|---|---|---|---|---|
| 1 | Naraingunge ... ... | 8 | Fatulla, Pagla ... | Metalled ... | Trees planted. |
| 2. | Byde Bazar ... ... | 7¾ | Nabigunge, Kykertek, Mograpara, and Byde Bazar. | Unmetalled... | Ditto. |
| 3 | Toke ... ... | 46¾ | Toonge, Singchurry, Ulushara, and Toke | Ditto ... | Ditto |
| 4. | Kudda ... ... | 5¼ | Joydebpur and Kudda ... | Ditto ... | Not planted. |
| 5. | Maugh Bazar ... | 1¾ | Maugh Bazar ... | Ditto ... | Ditto. |
| 6. | Barunighar (Moonshigunge) to Dhaleswari. | ¾ | Moonshigunge ... | Ditto ... | Ditto. |
| 7. | Dacca-Goalundo road, 1st section. | 11 | Mirpur ... ... | Ditto ... | Trees planted. |
| | Ditto, 2nd section ... | 16½ | Joymandap, Singair, Byra | Ditto ... | Not planted. |
| | Ditto, 3rd section ... | 15½ | Banisjuri, Mahadebpur, and Uthali. | Ditto ... | Trees planted. |
| 8 | Moonshigunge ... ... | 18 | Moonshigunge, Feringi Bazar, Rikab Bazar, Mirkadim, Abdullapur, Taltola, Ichhapur, Singpara, and Srinagar. | Ditto ... | Not planted. A bridle road only. |
| 9. | Jainsar ... ... | 1¼ | Jainsar ... ... | Ditto ... | Ditto. |
| 10. | Bajrojogini ... ... | 2¾ | Bajrojogini ... ... | Ditto ... | Ditto. |
| 11. | Kata khali ... ... | 1 | ..... | Ditto ... | Ditto. |
| 12. | Mainat ... | 7½ | Nowabgunge, Kalakopa, Pallamgunge, and Mainat. | Ditto ... | Ditto. |
| 13 | Demra ... ... | 1 | Dayagunge and Kazlah ... | Ditto ... | Trees planted. |
| 14. | Danga Narsingdi ... | 9¼ | Danga, Pakuria, Mattra, Panchdona, Narsingdi | Ditto ... | Not planted. |
| 15. | Durga Road, No. 1 ... | ½ | Sha-Ali-Shah's durga ... | Ditto ... | Ditto. |
| 16. | Ditto, No. 2 ... | 1 | Ditto ... ... | Ditto ... | Ditto. |
| 17. | Kalatia ... ... | 7 | Keranigunge, Barisoor, Khagail, and Atti. | Ditto ... | A bridle road only. |
| 18 | Jhitka ... ... | 6¾ | Nabagram, Sarupai, Kalta, and Jheotka. | Ditto ... | Ditto. |
| 19. | Goshinga ... ... | 4½ | Sripur and Goshinga ... | Ditto ... | Ditto. |

## CHAPTER VIII.—Trade and Commerce.

158. *Peripatetic tradesmen.*—At the beginning of the chain of agencies by which the villagers are supplied with the necessaries of life as well as the requirements of the few comforts they can afford to indulge in, are the inevitable hawkers or the peripatetic tradesmen. They are of all grades, and deal in articles of almost every description. They may be simply the old women of the village, selling vegetables and milk to such of their neighbours as are in want of these things, or men coming from such distant places as Afghanistan, Rajputana, Benares, &c., bringing with them foreign fruits, horses, woollen cloth, stone plates, and the like. The articles thus brought to the very door of men living in the remotest villages differ much as regards their value as well as quantity. The total value of the trade carried on in this way in the

whole country, of which no notice is taken because it is done so quietly, is very great. The Vediyas, the gypsies of India, both men and women, but especially the latter, are great experts in this sort of trade. They form the agencies by whom the most out-of-the-way places are supplied with cheap European goods. These people have seldom any fixed habitation, but generally live in small boats of peculiar construction, with their families and children. They attend hâts and fairs, as well as go to the houses of villagers.

159. Almost every considerable village has one or two shops in which are kept the common articles of food, such as coarse rice, a few pulses, some seers of *cheera* and *gur*, some oil, salt, and the like, and some rupees' worth of pice. Some pieces of cloth, generally of English manufacture, are also kept.

160. Larger villages have hâts or village markets held once or twice a week. These hâts are generally centrally situated with regard to the surrounding villages, and almost invariably held under the umbrageous shade of a banian tree. These village markets are of various degrees of importance. There are many held on mere open grounds having either no houses whatever, or only a few small open huts in the middle of the place, where the more valuable things are exposed for sale. In more important market-places there are large houses for the shop-keepers who are settled there, placed in long rows on both sides of the open ground. In the middle there are one or more rows of those open huts mentioned above. In one of the larger houses there is invariably a blacksmith plying his craft, and in another a *sundi* selling cheap country-spirit in a licensed outstill or shop. The articles for sale are exposed in the open huts as well as in long lines between two rows of huts, or between these and the larger houses. In placing the articles, a sort of rough arrangement is always observed, there being separate places for the vegetables, the fishes (fresh and dry), the milk, cloth, and so forth. It is in these markets that the men of the surrounding villages obtain their supply of the common necessaries of life, the ordinary articles of food, vegetables, salt, oil, rice, pulses, &c., being always bought in quantities sufficient to last for a week or half that time, according as the markets are held once a week or twice within that interval. The cultivators attend these markets both to dispose of the things they have to sell, and to purchase what they are in want of. The market day is always a holiday with the cultivating classes, for on that day the head of the family returns home in the evening with a little cash money in his pocket, some cheap sweetmeats for the children, one or two fishes, during the rains invariably a stale *hilsa* fish, and sometimes one or two pieces of new cloth.

161. It is only in very important places, such as the head-quarters of the subdivisional officers or moonsifs and the family seats of some big zemindars, that markets are held daily. These daily markets are called bazars, and are meant to supply vegetables, fish, milk, rice, pulses, and other ordinary articles of food.

162. *The importing and exporting marts.*—These are all situated on the sides of navigable rivers and in the neighbourhood of important agricultural villages and places of manufacture. Here are big firms and important shops belonging to the rich merchants of the district, some of whom probably have also firms in Calcutta and other places. In these marts trade is carried on daily as well as on those days when hâts are held. These hâts are attended by petty tradesmen, who purchase here things that they afterwards sell in the village hâts and shops described above. Here also come the *beparis* who have bought jute, oilseeds and other agricultural produce of the district either in the village hâts or at the houses of the villagers, to sell these things again to the big merchants who carry on exporting trade.

163. *The trade routes of the Dacca district.*—The rivers are the highways of commerce in the Dacca district, and by their means it has almost a perfect communication with other districts with which it is commercially related. By means of the Meghna the district has communication with Eastern Mymensingh, Cachar, Sylhet, and North-Western Tipperah. The numerous tributaries having their origin in the Garo, Khassi, and the Sylhet-Manipur hills, and passing through the important places named above, converge and unite to form the Meghna, a few miles above Bhairab Bazar, near which the three districts of Dacca, Mymensingh and Tipperah meet together; and from Bhairab Bazar down to its south-eastern extremity the Meghna forms the eastern boundary

of the district. The important trading marts on the Megna are Bhairab Bazar, Roypura, Narsingdee, Baidya Bazar, and Chandpur (in Tipperah). Naraingunge, the most important commercial mart of the district, is only five miles from the Meghna, and is connected with it by means of the Lakhya and Dhaleswari. The lower course of the Meghna forms the highroad between Dacca and the districts of Southern Tipperah, Noakholly, Chittagong, and Eastern Backergunge. The Jabuna, passing all along the western side of the district, brings to it the produce of Assam, Cooch Behar, Rangpur, and Pubna. The Padma and the Dhaleswari connect the Jabuna and the Meghna. The Dhaleswari affords the route to take things from the west side of the district to the east, and on it, or in very close connection with it, are the important marts of Gheor, Kedarpur, Satura, Manikgunge, Byra (a growing mart for the jute trade), Sabhar, Dacca, Fatulla, Taltala, Mirkadim, Feringhi Bazar, Rikab Bazar, Barunighat, Moonshigunge, Naraingunge, Madangunge and Sonakanda. On the Jabuna and the Padma the district has the marts of Jaffargunge, Teota, Aricha, Bhagyakul, and Lahajang. Very close to the last of these is the important market of Taratia. Boats from Nuddea, Jessore, Faridpur, and Backergunge first enter into the Padma by one or other of its numerous branches of this river on the right, and then reach Naraingunge or Dacca either by the Balaishia and Meghna, or by one or other of the creeks by which the Dhaleswari is connected with the Padma. Boats laden with refined sugar from the Upper Provinces come down the Ganges as far as Goalundo, then passing up the Jabuna enter into the Dhaleswari, Manikgunge being generally the place of their destination.

164. The district is intersected by a complete network of rivers and creeks, but excepting during the rains, the internal communication is not so good as that with the surrounding districts. The lower courses of the Dhaleswari and the Lakhya are the only rivers navigable by boats of any burthen throughout the year. The jungle products of the Madhupur jungle find inlet in two different ways—1*st*, they are either brought to the Dhaleswari by the rivers of Bansi and the Toorag, and then taken to other parts of the district; or 2*nd*, by means of the Banchera, the Banar, the Tangi, the Balu, and other streams flowing from the eastern slope of the jungle, the articles are brought to the Lakhya and thence distributed throughout the district. On the Bansi are the marts of Kaliakur, Dhamroy, and Sabhar. Mirpur is on the Toorag, and Kaoraid on the Banchera. The important marts of Barmi, Lakhpur, and Kaligunge are on the Lakhya. Narsingdee is situated at the junction of the Arialkhan with a branch of the Meghna.

165. Naraingunge is the most important mart in the district. It is situated on the western bank of the Lakhya river at its confluence with the Dhaleswari, and with its bazar extends about three miles along the river. The town properly includes Madangunge, a little lower down on the opposite side of the river, which is in reality a portion of the Naraingunge mart, and was established by the merchants of that place, who were pressed for want of room in the town. Naraingunge is 10 miles from Dacca by rail and about 18 miles by water. It has steam communication with Goalundo, the terminus of the Eastern Bengal Railway, and with Calcutta, Assam, Cachar, and Sylhet. There is a daily steamer service with Goalundo, taking passengers and parcels only, and for heavier goods there is a weekly service. The Sylhet steamer service is also a daily one. Naraingunge is a dispensing mart. It imports from Chittagong, Calcutta, Cooch Behar, &c., not simply for local consumption, but principally for supplying the surrounding districts. Again, the district of Dacca grows a small portion of the agricultural produce exported from Naraingunge. Of the jute that is annually exported from this port, fully two-thirds come from Mymensingh, Sylhet, and Tipperah. Of the cotton exported from this place, not one maund is grown within the district. It is probable that if the Chandpur-Chittagong Railway, now under contemplation, be constructed, and direct steamer services with Goalundo and Calcutta be increased, as is very likely to be the case, the importance of Naraingunge as a dispensing mart will be very much lessened.

166. *Dacca.*—As a trade centre in the district, Dacca ranks next in importance to Naraingunge only. At one time it was the great emporium of trade in Bengal. It had commercial intercourse with China on the one hand, and

with Turkey, Syria, Arabia, Ethiopia, and Persia on the other. A little later on, Dacca sent its muslins and embroidery fabrics to Provence, Italy, Languedoc, and Spain. When Surat became the principal emporium for the goods of Europe and India, Dacca carried on a considerable traffic with that place. The exportation of cloths to different parts of India was also very extensive in former times. It supplied the finest muslin of the imperial wardrobe at Delhi. A regular export and import trade existed with Pegu and countries to the eastward. Since the time of the Burmese war this trade declined, and was transferred to Calcutta. At the close of the last century the annual investment made by the East Indian Company and by private traders for Dacca muslins was estimated at 25 lakhs of rupees. But in the beginning of the present century this industry rapidly began to decline under the competition of cheaper piece-goods from Manchester. By 1813 the value of the private trade had fallen to two lakhs of rupees, and four years later the Commercial Residency of the Company was abolished. The prosperity of the city never fully recovered this blow.

Under the influence of the British administration, like all other places in the country, Dacca again increased in importance as a trading centre. If Naraingunge is the great exporting and importing mart of the district, it is the city of Dacca that supplies the interior with all English manufactured articles, with the single exception of salt. But the city is once more, and perhaps for ever, destined to lose its commercial importance. There can be no doubt that the prosperity of the place was chiefly owing to its advantageous geographical position. It is placed on the left bank of the river Booriganga, which, though not a large river, was navigable throughout the year, and had easy communication with the three of the biggest rivers in Bengal that form the boundaries of the district. Of late this river has a good deal silted up and is fast dying away. When this high road is closed, as it is likely to be at no very distant date, the commerce of the city is sure to be transferred to Naraingunge, and from enquiries made on the subject I find the movement has already begun.

167. Annual fairs are held in the district at the following places, namely :—

(1) Moonshigunge (Barunighat).
(2) Nangalband.
(3) Manikgunge.
(4) Dhamroy.
(5) Lahajang.

These fairs are all held in connection with Hindu religious festivals, but they have a commercial aspect which has become even more important than the religious. The fair held at Moonshigunge, or, more accurately speaking, near the site of Idrakpur, formerly situated on the Ichhamati, commences at the full moon of the month of Kartik and continues nearly a month. The majority of dealers and manufacturers who occupy booths come from the city and district of Dacca, but a few arrive from remote parts, such as cloth and brocade merchants from Amritsar, dealers from Delhi and Benares, Maghs from Arakan, who bring catechu and other commodities for sale. Bamboos are brought from Sylhet and Tipperah, and sundri wood from the Sundarbans. The Kabulies muster very strong with their *mewas* and woollen cloths. Nearly all goods, European and native, which are in general demand, may be procured here.

168. The imports and exports of the important marts are given in appendix VII. The figures have been taken partly from a special trade report submitted to Government by the Collector of Dacca, and partly from notes collected by me in the course of my enquiry. Much reliance cannot be placed on those figures, for accurate trade returns can only be obtained by well-organized and systematic traffic registration.

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## CHAPTER IX.—Liability to famine.

169. *History of past famines.*—Along with the rest of Bengal, the district of Dacca was visited by a famine of great severity in 1769-70. "There was a sudden and long-continued inundation that destroyed the greater portion of the crops. This was succeeded by intense heat and high winds, during which time no rain fell, the tanks and wells were dried up, and fires arising from the friction of bamboos and other trees were of constant occurrence in the jungles

and in the vicinity of villages. During the scarcity that succeeded in the rainy season, the poor chiefly subsisted on *sapla*, or the stalks of the water-lily and other aquatic plants. A great many perished, while the survivors, deprived of seed and cattle, were obliged to cultivate the common jungle plants for their sustenance. It appears, however, that this part of Bengal suffered in a considerably less degree than the districts to the north-west." This very probably was owing to its proximity to Sylhet, which appears to be the only district in Bengal that secured a good harvest in 1770. There was a scarcity in 1784, the immediate cause of which was a sudden rise of the Meghna and the destruction of both the *aus* and the winter rice: the former crop just when it was ready for the sickle. But this happened under the aggravating circumstances of a short crop during the preceding year and a large exportation of rice to the North-Western Provinces, which were visited by a famine. The scarcity was most intense in October, when the failure of the winter rice, which had been buried under water, remained no longer doubtful.

District records.

170. There was another famine in 1787-88, attended with very serious consequences. The rains set in early in March and continued without a break till the middle of July, when the rivers rose to an unusual height and inundated the whole of the district to an extent unknown before. The streets of Dacca were overflowed to such a depth that boats could sail through them. Both the *aus* and the winter rice were completely destroyed. The pergunnahs of Kartikpur and Rajnagar (now transferred to the Backergunge district) suffered most. The loss of life amounted to 60,000 persons. The loss of property appears to be very great. Several of the pergunnahs lost three-fourths of their industrious population, who died or emigrated, and the lands were in consequence overrun with jungle and infested with tigers and hogs. The price of food-grains rose to three or four times the normal price. The Collector, Mr. Day, proposed to Government to import grains from the North-Western Provinces, but no supply was received till April, when 7,250 maunds reached the town. To add to the distress, a fire broke out in the city which destroyed 100 persons, 7,000 huts and a large quantity of grain belonging to the retail dealers.

District records.

171. A flood is said to have occurred again in 1833-34, which swept away a large number of animals and destroyed the crops.

172. The effects of the terrible famine that overtook Orissa in 1865 were felt here as in other parts of Bengal. The harvest of 1865 had been unusually bad, and large quantities of grains were exported to the famine-stricken province. There was a partial failure of crops in the following year, especially in many parts of the Manikgunge sub-division, in the neighbourhood of Palash on the Lakhya, and in some parts of Bikrampur. There was excessive rainfall in June, followed by great want of rain during the months of July, August, September, and October. In June the fall was 5·13 inches above the average. The average rainfall for the four succeeding months is 43·61 inches. During 1866 it was only 29·42. Excessive rainfall followed by a long-continued drought, however, was not the only cause of the scarcity of 1866. In several parts of the district, particularly in the neighbourhood of Naraingunge, Fulbaria, and Shooapur, great injury was done to the crops by a small black insect which devoured the plants from the root upwards. Prices rose very high. The poor people must have suffered severely. Some lived on a half meal of rice, to which they added *cheena* and *kaon*, varieties of millet. Fruits, boiled pumpkin, barley powder and the husks of paddy formed the diet of others. Some even were reduced to an allowance of food on alternate days. These cases, however, were not numerous, and food was liberally distributed by the well-to-do natives.

District records.

173. In 1870 the water rose very high and caused considerable destruction of the crops of the low-lying lands, but there was not much distress among the people. The effect of the Behar famine in 1873 was to some extent felt here, and some relief had to be given in the city at Dhamroy, Shooapur, and in some parts of the Manikgunge and Moonshigunge sub-divisions.

District records.

174. *Causes of past famines.*—From the above it will be noticed that the past famines and scarcities were caused by the following causes acting

singly or conjointly, viz. inundation, drought, and devastation of crops by insects.

175. *How far these causes may affect the district now*—

(1) *Inundation.*—The district has three very big rivers flowing on its three sides, and it is intersected by two large rivers and numerous small streams. A district so situated is always more or less liable to be flooded. Of late, however, by the shifting of the course of the Brahmaputra, the south and the western parts of the district have been a great deal raised, and the deposition of silt on the low-lying places will go on during every rainy season till these places have been raised above the ordinary inundation level. The new river Alum, of which mention has been made in a previous page, has in this way been raising a portion of the country which is at present most liable to flood. Again, the pergunnahs that were most liable to inundation have been transferred to the Backergunge district.

(2) *Drought.*—Drought does not affect the crops of the Dacca district to the same extent as those of other places in Bengal. The soil in many places retains a considerable quantity of moisture long after the rains have ceased to fall. Of the different varieties of paddy grown in the district, the long-stemmed aman is by far the most important crop, and it is dependent on the local rainfall only during the first stage of its growth. When once it has got a start, and the land on which it grows is inundated, a cessation of the local rain cannot affect it much. The boro paddy, again, is grown by the sides of jheels and on the edges of tidal rivers and creeks, and is either artificially irrigated, or is watered every time the tidal current comes. An early rainfall, however, is needed for both the aman and aus paddy as well as for the jute crop. The state of things most injurious for the main crops of the district would be a want of rain in Chaitra and Baisakh, followed by an early rise of the rivers, for then the sowing of aus and aman paddy as well as jute would be delayed and the late-sown crops destroyed by the inundation water.

(3) *Insect pests.*—Destruction of crops by insects locally generated or by locusts coming from other districts, especially from the south, is not unknown here, but distress from such causes is restricted to limited areas and never assumes a severe character.

176. *Possibility of failure of crops in different parts of the district.*—For the better understanding of the liabilities of the district to famine, we will divide it into the following tracts, and treat each tract separately:—

(1) Pergunnahs Kassimpur and Bhawal.
(2) The tract between the Lakhya and the Arialkhan rivers.
(3) The dearahs of the Meghna, Padma, the Jenai, and the Dhaleswari.
(4) The interior of the Moonshigunge and Manikgunge sub-divisions, together with that of the Nawabgunge thana included in the Sudder sub-division. Map 2.
(5) The tract having on one side the river Bansi and on the other the Ghazekhali and the Rabraban creeks.

177. (1) All the different varieties of paddy are grown here. The aus paddy and jute are grown on the high lands, the transplanted aman on the sloping valleys, and the boro on the edges of jheels. A good deal of long-stemmed rice is also grown on the edges of jheels and along the Toorag, the Shaldah, the Lavandaha, and other small streams. Formerly large quantities of rice were sent from this tract to other parts of the district. The quantity now available for export is much less, owing to some extent to the increase of population, but especially to the introduction of the cultivation of jute. The aus and the transplanted paddy as well as the jute grown on the tops and sides of high lands are entirely dependent on rain water, and that these crops may give a full outturn it is necessary that there should be a sufficient and well-distributed rainfall from the beginning of May, if not earlier, till October.

Should the rain be held back till June, the aus paddy and jute could not be grown, and should July be equally dry, the cultivator must give up all hopes of transplanting his aman crop. An early cessation of rain will affect all the three crops, and unless the rain be continued till the middle of October a most promising aman crop may not form ears, and wither away. The long-stemmed paddy will require early rain for the preparation of the land as well as for its proper growth at the first state.

178. (2) This is the greatest jute-growing tract in the district. The land is comparatively high, and therefore flood cannot do much injury to the crops. Early rainfall is not absolutely necessary, though it will be highly beneficial. It must, however, rain at intervals all through the summer and the rainy seasons to ensure a good harvest. The cultivators here have large holdings, and are the richest in the district.

179. (3) The main crops of this tract are the aus paddy and jute. The land here is more or less liable to flood. A too early rise of the rivers is sure to injure these crops, especially if they have been put in late. To secure a good harvest on this tract, it is therefore necessary that there should be early rain, so that the crops may be sown as soon as possible, and that the rivers should not over-flood the land till these have been harvested, *i.e.* till Sraban. This tract also grows a good deal of oilseeds and pulses, and in some parts some valuable green crops, and these may to some extent compensate for a not too serious failure of the aus paddy and jute. Again, over a large area in this tract, in the Roypura police-station, the boro paddy forms a very important crop, and it has been shown before that this crop is not much affected by drought.

180. (4) Almost the only crop grown on this tract is the long-stemmed paddy, and, as stated before, the success of this crop depends on the early rain in Chaitra, Baisakh, and Jeith. After this latter month the land is generally inundated, and the crop becomes almost independent of the local rainfall. A frequent cause of the failure of the paddy here is a too sudden rise of the rivers by which the plants are overtopped. The rubbi crop grown here is too insignificant to render much help to the ryots in case the paddy fails.

181. (5) This tract grows long-stemmed rice and a good deal of peas, the latter crop being quite as important as the former. This is the tract that suffers most from flood, and frequently large areas of paddy are clean washed away. The ryots have large holdings, the population being exceedingly low, and generally realize large sums of money from the sale of the pea crop. The new river Alum is likely to produce very great changes in this part of the country.

182. From the above it will be seen that the success or failure of the crops in the Dacca district is most dependent on the rainfall during the early months of Chaitra and Baisakh, and should there be no rain during these two months there should be a cause of great anxiety to the authorities. Of all the parts of the district, again, the interior of the Moonshigunge and Manikgunge sub-divisions and the Nawabgunge thana of the Sudder sub-division is most liable to scarcities; and unfortunately at the time the distress is likely to be most felt, namely, during the summer, the communication here is not so good as would be desirable.

183. *Ability of cultivators to tide over scarcity unaided.*—As regards the ability of the cultivators to pass over a year of scarcity without any extraneous aid, the district of Dacca, I believe, is not much better off than other districts in Lower Bengal. The great curse of the Indian ryots—indebtedness to the money-lending classes—exists here as elsewhere. As previously stated, not less than 70 per cent. of them are involved in debts; and should the state of things be but slightly different from the normal, about half this number will find themselves quite helpless. The advantage which this district possesses over many other districts in Bengal is, not that in case of any serious failure of crops the cultivators here, being richer than their brethren in other districts, will be able to tide over it unaided, but that the physical conditions here are so favourable that a serious failure of crops over an extended area is not probable.

184. *How a failure of crops will affect the non-agricultural community.*—A failure of crops in the Dacca district, however, will affect the non-agricultural classes far less seriously than in other places, for the district of Dacca does not produce food much in excess of what is just sufficient for the agricultural community alone. Nearly 40 per cent. of the population obtain their food-supply

rom the surrounding districts of Mymensingh, Sylhet, Tipperah, Noakhali, and Backergunge. A failure of crops in Dacca therefore can affect directly the cultivating classes alone, and only indirectly the other classes. Again, the district has such an easy communication with thes urrounding places on which it is dependent for the greater portion of its food-supply, that supposing good harvests have been gathered in these places, the price of food-grains will not rise much even in a year of serious failure of crops here. Under the condition assumed, sufficient quantity of food would be forthcoming, and that at very nearly the normal price; but the agricultural classes will suffer all the same, for it will be with them a question, not of scarcity of food, but of scarcity of money wherewith to buy it.

## CHAPTER X.—MINERALS.

185. No mineral ore of any economic value has been found in the district, and considering that the whole surface land to a great depth consists of nothing but alluvial formations, it is not likely that any will ever be discovered. In some parts of the Madhupur jungle a black substance very much resembling iron slag has been found in large quantities, and it is believed that in these places iron was formerly extracted. Even now a few places within the area of the jungle are celebrated for the superior quality of the iron implements manufactured there. At the present time, however, nothing but imported iron is used. The only minerals found in the jungle are calcareous nodules and pisolitic iron concretions. Both are met with only in very small quantities, and are evidently formed in the red clay, and did not exist since the red clay was first deposited. These are chiefly found in the *nalas* through which the rain water falling on the higher grounds finds its way to the adjacent jheels. From the limited nature of the supply of this pisolitic iron concretion, it does not seem probable that it was from this substance that the iron was formerly extracted. The richness of the clay of some of the localities in iron compound, on the other hand, makes it probable that this was the substance that was made use of in supplying iron. The iron slag mentioned above is being utilized by the Dacca Municipality in metalling the roads.

186. *Earthenware clay.*—A large quantity of ordinary country pottery is manufactured in the district. Fort his two different kinds of clay is used: First, a light yellow-coloured clay found at a depth of two or three feet in the jheels within the Madhupur jungle. This is considered a very good clay for making the cooking-pots. Second, a black peat clay found in the Airal and other jheels. It is used especially in the manufacture of the large urns in which oil is exported from the Manikgunge and Madangunge marts.

187. *Sand.*—White silvery sand is abundantly to be found on the churs of the Jenai, Padma, and the Dhaleswari. This sand is exceedingly micaceous, and therefore not so useful for building purposes as the Magra sand so much in use in Calcutta and its neighbourhood.

## CHAPTER XI.—IMPORTANT FLORA.

188. *The district rich in vegetation.*—The district is very rich in vegetation. The elevated land in the Madhupur jungle, the low-lying plains and jheels, the dearahs of the large as well as small rivers, and even sheets of water in ponds and old beds of rivers, are all covered with plants comprising numerous orders, genera and species, the soil, the climate, as well as the rainfall, being all favourable for their production. To enumerate them all would be to write a separate treatise on the subject. I shall therefore content myself by including in the following list only such of them as have proved highly useful to the people.

189. *Uncultivated plants that supply food, especially at famine time—*

| *Vernacular names.* | *Botanical names.* | *Parts edible.* |
|---|---|---|
| Shampla ... | Nymphæa lotus ... | The bulbous root called shaloo, the stalks and the ripe seeds. |
| Singhara ... | Trapa bispinosa and T. quadrispinosa. | The kernels of the nuts. |

| *Vernacular names.* | *Botanical names.* | *Parts edible.* |
|---|---|---|
| Padma ... | Nelumbium speciosum ... | The roots and seeds are eaten. The flowers are much prized at religious ceremonies, and the leaves are used as plates or wrappers for articles in the bazar. |
| Makna ... | Anneslia spinosa ... | The kernels of seeds. |
| Ghechoo ... | Aponogeton monostachion... | The bulbous roots. |
| Kalmi ... | Convolvulus repens ... | The tender shoots. |
| Helencha ... | Jussieu repens ... | Ditto. |
| Ban Pui ... | Bâsalla lucida ... | The leaves and stem. |
| Geema ... | Erythraea centauroides ... | The tender shoots. |
| Bethua ... | Chenopodium viride ... | Ditto. |
| Dheki ... | A species of ferns ... | Ditto. |
| Kachu ... | Various species of aroidae ... | The root stock. |
| Banbharali ... | A species of aroidae ... | Ditto. |
| Ol ... | Amorphophallus campanulateris. | Ditto. |
| Kanta naita ... | Amaranthus atropurpurens | The tender shoots. |
| Punaunabha ... | Boerhaaiara diffusa ... | Ditto. |
| Kham aloo ... | Dioscoria alata ... | The roots and the tubercles found in the stem. |
| Banshim ... | Lablab dumentorum ... | Fruit. |
| Baghnakh ... | Lablab falacota minus ... | Do. |
| Puniyola ... | Flacourtia cataphracta ... | Do. |
| Munphal ... | Vangueria spinosa ... | Do. |
| Baer ... | Ziziphus jujuba ... | Do. |
| Guava ... | Psidium pyriferum ... | Do. |
| Ban khajoor ... | Phœnix farinefera ... | Do. |
| Jam ... | Eugenia jambolana ... | Do. |
| Dephal ... | Artocarpus lacoocha ... | Do. |
| Pepe ... | Carica ... ... | Do. |
| Banjam ... | Ardisia hamilis ... | Do. |
| Gab ... | Diospyros embryopteris ... | Do. |

190. *Fruit trees* that are cultivated in gardens—

| *Vernacular names.* | *Botanical names.* |
|---|---|
| Am ... | Mangifera indica. |
| Kantal ... | Artocarpus integrifolius. |
| Bel ... | Aegle marmelos. |
| Baer ... | Ziziphus jujuba. |
| Guava ... | Psidium pyriferum. |
| Ata ... | Anona squamosa. |
| Nona ... | Anona reticulata. |
| Jam ... | Eugenia jambolana. |
| Gulap jam ... | Eugenia jambosa. |
| Gab ... | Diospyros embryopteris. |
| Jamrul ... | Eugenia alba. |
| Lichee ... | Nephelium. [Lichee thrives well in the soil of the Madhupur jungle.] |
| Latqua ... | Pierardia sapida. |
| Kamranga ... | Aurhoa acida. |
| Julpai ... | Elæocarpus serrata. |
| Chalta ... | Ditenia speciosa. |
| Tentul ... | Tamirindus indica. |
| Kathbel ... | Feronia eliphantum. |
| Amra ... | Amoora rohituka. |
| Belati amra. ... | Spondius dulcis. |
| Batabi nebu ... | Citrus decumena. |
| Nebu ... | Citrus bergamia. |
| Narikel ... | Cocos nucifera. |
| Tal ... | Borasus flabelliformis. |
| Supari ... | Areca catechu. |
| Khajur ... | Phœnix sylvestris. |

191. *Timber and other trees of economic importance*—

| | |
|---|---|
| Gazari ... | An inferior variety of sâl. |
| Chambol ... | ..... |
| Jack ... | Artocarpus integrifolias. |
| Lutqua ... | Pierardia sapida. |
| Am ... | Mangifera indica. |

| *Vernacular names.* | *Botanical names.* |
|---|---|
| Jam ... ... ... ... | Eugenia jambolana. |
| Kari ... ... ... ... | A species of acacia. |
| Babla ... ... ... ... | Mimosa arabica. |
| Aryuni ... ... ... ... | Terminalia arjuna. |
| Gambhari ... ... ... ... | ..... |
| Jalpy ... ... ... ... | Elœocarpus prinoides. |
| Melenga ... ... ... ... | ..... |
| Bans ... ... ... ... | Bambusa vulgaris— (*a*) Tulda. (*b*) Jaoa. (*c*) Ora. (*d*) Baora. (*e*) Nali. Bambusa arundinacea (Banbans). |
| Bet ... ... ... ... | Calamus rolang. |
| Ulu ... ... ... ... | Saccharum cylindricum. |
| Kaola ... ... ... ... | Ditto. |
| Kash ... ... ... ... | Ditto spontaneum. |
| Lata ... ... ... ... | Ditto. |
| Nal ... ... ... ... | Arundo kurkha. |
| Hogla ... ... ... ... | Typha elephantina. |
| Tal ... ... ... ... | Borasus flabelliformis. |
| Motra ... ... ... ... | Phrynium dichotomum. |
| Higal ... ... ... ... | Barringlonia acutangulea. |
| Jhan ... ... ... ... | Tamarix indica. |
| Dalghas ... ... ... ... | Panicum stagninum. |
| Baksha ... ... ... ... | Rolbœllia glabra. |
| Doorba ... ... ... ... | Cynodon dactylon. |

192. *The medicinal plants.*—The Madhupur jungle is very rich in such medicinal plants as are extensively used by Hindu physicians. The following list contains the names of the most important of these plants, together with the names of diseases to which they are used. A few medicinal plants grown in the district outside the Madhupur area are also mentioned here :—

| Vernacular name of the plant. | Botanical name. | Parts of the plant used as medicine. | Diseases in which used. |
|---|---|---|---|
| Bata ... ... | Ficus indica ... | The bark of the tree; roots, and of the aerial roots; tips of the aerial roots, and buds. | Dropsy; eye-diseases; diseases of the female generative organs; fistula (early stage); fever. |
| Aswatha ... ... | Ficus religiosa ... | Fruits, buds and bark of roots. | Dropsy; heart-diseases; various diseases of the female generative organs. |
| Pakur ... ... | Ficus infectoria ... | Ditto ... | Diseases of the female organs, and headaches. |
| Janga dumbir ... | Ficus glomerata ... | Bark and fruits ... | Worms; abnormal thirst; bleeding. |
| Gambhari ... | ..... | Ditto ... | Colic pain; piles; headache; fever; milk fever. |
| Paruli ... ... | ..... | Fruits, flowers, the bark of roots. | Cough; heart-disease; fever; worms; leprosy. |
| Ganiari ... ... | ..... | Bark of roots ... | Piles; jaundice; leprosy; dropsy; fever. |
| Shona, naoshona or shonapata. | ..... | Fruits and bark of roots. | Cholera; typhoid fever; worms; leprosy. |
| Belwa or Bel ... | ..... | Fruits and leaves ... | Dropsy; cough; cholera; dysentery; worms; diarrhœa, colic pain. |
| Sriphal ... ... | ..... | Fruits and bark of roots | Worms; leprosy; fever; cough. |
| Khadir ... ... | Mimosa catechu ... | Inner wood ... ... | Abscess; fever; worms; gonorrhœa; disease of the teeth. |
| Raktachandan ... | ..... | Ditto ... ... | Liver; worms; eye-diseases; leprosy. |
| Jayanti ... ... | Aeschynomene sesban Variety (*a*), yellow flower. Variety (*b*), black flower. | Leaves and bark ... | Worms; dropsy; fever. Swelling; eye-diseases. |
| Jaba ... ... | Hibiscus rosasinesis | Flowers ... ... | Cholera; abscess; menorrhagia. |
| Rakta karavi ... | Nerium odorum ... | Roots ... ... | Skin-diseases; abscesses. |
| Sweta karavi ... | Ditto ... | Do. ... ... | Itches; worms; eye-diseases. |
| Madhavilata ... | Hiptage madublata | The whole plant ... | Cough; burning sensation, and abnormal thirst. |

| Vernacular name of the plant. | Botanical name. | Parts of the plant used as medicine. | Diseases in which used. |
|---|---|---|---|
| Sonali ... ... | Cassia fistula ... | Pods ... ... | Given as a cooling drink in fever cases. |
| Amada ... ... | Curcuma amada ... | Rhizome ... ... | Itch ; diseases of the liver. |
| Baada ... ... | Curcuma ... | Ditto ... ... | Leprosy. |
| Sona ... ... | Bauhinia purpurea... | Wood ... ... | Fever. |
| Karella ... ... | Mimordica muricata | The whole plant ... | Fever; cough ; worms ; gonorrhœa. |
| Pippul ... ... | Pipur longum ... | Fruits and roots ... | Fever ; piles ; leprosy ; cough ; worms. |
| Katkaronja ... | Cæsalpinia bonducella. | Leaves ... ... | Fever. |
| Jaypal ... ... | Croton tiglium ... | Seeds ... ... | Worms ; colic pain ; skin-diseases ; dropsy. |
| Satamul ... ... | Asparagus racemosus. | Roots ... ... | Piles ; cholera ; gonorrhœa ; dysentery ; leprosy. |
| Mashani ... ... | Glycine labialis ... | The whole plant ... | Dropsy ; fever ; skin-diseases. |
| Rasna ... ... | Rheum palmatum ... | Ditto ... | Cough ; fever ; snake-bite ; scorpion-sting. |
| Bhandi ... ... | Clerodendron viscosum. | Tender leaves ... | Fever and worms, especially of children. |
| Kalkasanda ... | Cassia purpurea ... | Roots and leaves ... | Cough; gonorrhœa; skin-diseases. |
| Siris ... ... | Acacia sirisa ... | Bark of roots, seeds and flowers. | Fever; dropsy; leprosy; itch. |
| Ghritakumari ... | Aloë Indica ... | Tender leaves ... | Cough ; liver ; skin-diseases. |
| Bala ... ... | Pavonia odorate ... | The whole plant ... | Fever ; leprosy ; heart-disease. |
| Ghosa ... ... | Luffa pentandra ... | Fruits ... ... | Jaundice ; piles. |
| Nagkesar ... | Mesua Roxburghii... | Flowers ... ... | Fever; itch ; cough. |
| Chameli ... ... | Jasminum grandiflorum. | Flowers and leaves ... | Abscesses ; leprosy ; cough. |
| Punannaba ... | Boerhaavia diffusa... | Leaves ... ... | Dysentery. |
| Manasaseej ... | Cactus indicus ... | Juice of leaves and bark of roots. | Dropsy ; colic pain ; leprosy piles. |
| Nisinda ... ... | Vitex negundo ... | Seeds and barks of roots | Hair-diseases ; worms ; fever. |
| Mahakal ... ... | Citrullus colocynthis | Roots ... ... | Fever ; gonorrhœa ; syphilis. |
| Taraka ... ... | Althœa alhugus ... | Juice of stems ... | Hæmorrhoids. |
| Jastimadhu ... | Glycirrhiza glabra... | Roots ... ... | Abscesses ; cough ; eye-diseases dropsy. |
| Harmuch ... | Cissus quadrangularis. | The whole plant ... | Wounds ; worms ; piles. |
| Rakta eranda ... | Ricinus communis... | Barks of roots, leaves and seeds. | Fever; cough ; worms ; incontinence of urine. |
| Bangra or Bhengaraj | Verbesina prostrata | Juice of the stem ... | Jaundice ; gonorrhœa. |
| Bhumi kusmanda ... | Trichosanthes cordata. | Rhizome ... ... | Consumption ; epilepsy. |
| Aparagita ... | Clitorea ternata ... | Juice of leaves ... | Sweating in hectic fever. |
| Bhang ... ... | Cannabis sawta ... | Leaves and seeds ... | Leprosy ; tetanus ; impotence. |
| Tejpatra ... ... | Lauras cassia ... | Leaves ... ... | Cough ; piles ; hæmaturia. |
| Dholkalmi ... | Ipomœa grandiflora | Roots and flowers ... | Insanity ; leprosy ; worms. |
| Neem ... ... | Azadirachta Indica | Fruits, barks, leaves, flowers. | Cough ; worms ; leprosy ; gonorrhœa. |
| Dhenras ... ... | Abelmoschus esculentus. | Fruits ... ... | Cough ; liver ; dysuria. |
| Babuitulashi ... | Occimum pilosum ... | The whole plant ... | Dysuria ; worms ; eye diseases. |
| Akanda ... | Calotropis gigantea | Barks of roots, leaves ... | Syphilis ; leprosy ; rheumatic pain. |
| Lajjavati ... | Mimosa pudica ... | The whole plant ... | Dropsy ; female diseases ; cholera. |
| Murba ... ... | Sanseviera Roxburghiana. | Roots ... ... | Typhoid fever ; cough ; leprosy. |
| Lalkunj ... ... | Abrus precatorius ... | Roots and seeds ... | Head-aches ; hair-falling ; fever ; itch. |
| Barahakranta ... | ..... | The whole plant ... | Worms ; leprosy ; gonorrhœa. |
| Boinchi ... ... | ..... | Fruits ... ... | Jaundice ; spleen ; cough. |
| Palas ... ... | Butea Frondosa ... | Barks, flowers, gum, seeds. | Worms ; piles ; dropsy. |
| Hatisunda ... | Tiaridium indicum... | The whole plant ... | Typhoid fever; cough ; colic pain. |
| Amlaki ... ... | Emblica officinalis... | Fruits ... ... | Phthisis ; gonorrhœa ; constipation. |
| Jhinti ... ... | ..... | The whole plant ... | Skin-diseases ; colic ; toothache. |
| Bayra ... ... | Terminalia moluccana. | The husks and kernels of fruits. | Worms ; rheumatism ; cough. |
| Hintal ... ... | Phœnix paludosa ... | Juice, barks and roots ... | Morbid thirst ; burning sensation. |
| Tal ... ... | Borasus flabelliformis. | Male rachis ... | Dropsy ; spleen and liver diseases. |
| Guruchi ... ... | Menispermum glabrum. | The granular substance of the juice. | Leprosy ; fever ; jaundice ; piles gonorrhœa. |
| Chai ... ... | Piper chaba ... | Roots and barks ... | Cough ; spleen ; worms. |
| Chita ... ... | Plumbago zeylanica | | |
| | Variety (*a*) Green ... | Roots ... ... | Leprosy ; worms ; itch ; spleen. |
| | „ (*b*) Red ... | Do. ... ... | Ditto. [This variety is even more powerful in its effect than the preceding.] |

| Vernacular name of the plant. | Botanical name. | Parts of the plant used as medicine. | Diseases in which used. |
|---|---|---|---|
| Gorak chakulya ... | Uraria lagopadioidis | Roots ... ... | Leprosy ; pain in the chest. |
| Bichitu ... ... | Trajia involurata ... | The whole plant ... | Fever ; leprosy ; cough. |
| Chaitan ... ... | Alstonia scholaries... | Barks ... ... | Leprosy. |
| Bhatbogun ... | Solanum hirsutum... | Fruits ... ... | Skin-diseases. |
| Basak ... ... | Adhotoda basika ... | Barks and leaves ... | Fever ; leprosy ; gonorrhœa ; cough. |
| Kesaraj ... ... | Wedelia calendulacia. | The whole plant ... | Diseases of the hair ; jaundice ; eye-diseases. |
| Mootha ... ... | Cyperus rotundus ... | The tuberous rhizome ... | Fever ; dysentery. |
| Man kachu ... | Colocasia indica ... | The rhizome ... | Dropsy. |
| Ol or bak ... | Amorphophallus campanulatuo. | Ditto ... | Spleen ; ringworm ; leprosy. |
| Kea ... ... | Pandanus adoratissimus. | Flowers and aerial roots | Ear-diseases ; cough. |
| Shyamalata ... | Echites frutescens... | Juice of plant ... | Fever. |
| Amrool ... ... | Oxalis corniculata ... | ..... | Piles ; cholera ; dysentery. |

## CHAPTER XII.—IMPORTANT FAUNA.

193. *I. Mammalia.*

1. Marsupialia—Bandicoot rats.
2. Cetacea—Porpoises.
3. Angulata—Horses (not found wild).
   Asses ( ditto ).
   Wild boar.
   Oxen (not found wild).
   Sheep ( ditto ).
   Goats ( ditto ).
   Buffaloes ( ditto ).
   Deer of four different species--
   (*a*) Ganj.
   (*b*) Sambhar.
   (*c*) Lookey.
   (*d*) Sogra.
4. Carnivora—Tigers.
   Leopards.
   Dogs (not found wild).
   Cats.
   Bears.
   Otter.
   Foxes.
   Jackals.
5. Rodenta—Porcupine.
   Hares.
   Rabbits.
   Mice.
   Rats.
   Squirrels.
6. Cheiroptera—Bats (*a*) Fox bat.
   (*b*) House bat.
   (*c*) Orange bat.
   (*d*) Common bat.
7. Insectivorous—Shrew.
   Mole.
8. Quadrumana—Monkeys.

194. *II. Birds*—

1. The hunting birds (mostly live on fishes and esh)—
   - (1) Gridhini—Vultures.
   - (2) Sakuni.
   - (3) Chil—Kite.
   - (4) Kura.
   - (5) Balla.
   - (6) Baj—(*a*) Ghughu baj—Eagles.
     - (*b*) Chhota baj.
     - (*c*) Hanna baj.
2. Feed on grains—
   - (1) Tia.
   - (2) Chandana.
   - (3) Mayana—(*a*) Ordinary.
     - (*b*) Red.
     - (*c*) Charai.
     - (*d*) Babui.
   - (4) Wild fowl.
   - (5) Karyle.
   - (6) Pigeon.
   - (7) Harikal.
   - (8) Ghugoo.
   - (9) Barui.
   - (10) Tuni—(*a*) Common sun-birds.
     - (*b*) Durga Tuni.
3. Feed on insects—
   - (1) Shalik—(*a*) Jhutioala.
     - (*b*) Chandani.
     - (*c*) Bhanta.
   - (2) Dayal
   - (3) Shama.
   - (4) Harbola—Parrot.
   - (5) Fancha.
   - (6) Peacock.
   - (7) Owls—(*a*) Large (Bhutum) owls.
     - (*b*) Common.
     - (*c*) Meta.
   - (8) Kuraila—Woodpecker.

Feed on fish—
- (1) Bak.
- (2) Machhranga (Kingfisher)—(*a*) Blue.
  - (*b*) Red.
- (3) Hargila—Adjutant.
- (4) Shamukbhanga.
- (5) Horekaka.

Feed on grains and insects—
- (1) Bulbul.
- (2) Kandara.
- (3) Pipi.
- (4) Titar.
- (5) Khanjan.
- (6) Kák.
- (7) Dár kák.

Feed on fish and insects—
- (1) Kalgai.
- (2) Sharile.
- (3) Ramkum.
- (4) Kora } Gallinule.
- (5) Kalom } Gallinule.
- (6) Pani kak.

Feed on fruits—(1) Bou kotha kao.
(2) Kalachua.
Feed on grains and fish—(1) Dahuk.

195. *III. Reptiles*—
(1) Turtles.
(2) Tortoise.
(3) Alligators.
(4) Sanda.
(5) Lizard.
(6) Monitor.
(7) Chameleon.
(8) Snakes—
(*a*) Machhanad } Live near jheels, have hood, and are
(*b*) Panas ... } poisonous.
(*c*) Cobra (poisonous).
(*d*) Goma ( ditto ).
(*e*) Darach ( ditto, but the poison is milder).
(*f*) Dubraj ( ditto ditto ).
(*g*) Ulabora (non-poisonous).
(*h*) Jinglabora ( ditto ).
(*i*) Landog ( ditto ).
(*j*) Ghauni ( ditto ).
(*k*) Mateshap ( ditto ).
(*l*) Dhora ( ditto ).
(*m*) Airalbeka ( ditto ).
(*n*) Shalikbora ( ditto ).
(*o*) Sankhini ( ditto ).
(*p*) Dhamua ( ditto ).
(*q*) Domukha ( ditto ).

196. *IV. Frogs*—
(1) Small and earth-coloured.
(2) Kat—very small, and yellow-coloured.
(3) Ordinary.
(4) Bhana—large, yellow-striped.
(5) Kuni.

197. *V. Fishes*—A list has already been given.

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## CHAPTER XIII.—Suggestions and General Conclusions.

198. *Alluvion, diluvion, and islands.*—It has been stated that one of the most important physical features of the district is the constant changes that are going on in its river-courses. In consequence of these changes, churs or small islands are often thrown up in the midst of the stream or near one of the banks, and large portions of land are carried away, by an encroachment of the river on one side, whilst accessions of land are gained by dereliction of the water on the opposite side. Villages and cultivated fields are in this way being reduced to beds of rivers, and lands are being formed in places formerly occupied by water-channels. These changes, affecting the interests of zemindars and others, often prove a very fruitful source of litigation both in the criminal and civil courts, and sometimes lead to serious disturbances of the public peace. Much litigation can be avoided and many cases of rioting prevented by having the banks of the principal rivers of the district once carefully surveyed, with a sufficient number of selected natural or artificially erected marks, such as pillars, shown in the maps, and then, with the aid of a small permanent survey establishment, by maintaining the records corrected up to date. There was a good opportunity of doing this at the time of the late dearah survey, but unfortunately that opportunity has been lost, and to do the thing now would require an amount of expenditure which the Government, I fear, would not be willing to incur. The same objects, however, may be gained by a simple legislative measure, declaring it unlawful and penal for landlords

and others to take possession of any new land, of whatever description, without the permission of the Collector. The Collector should at the same time be vested with powers summarily to decide between the titles to ownership of contending parties, and to settle ryots' rents on such lands at reasonable rates.

199. *Occasional level-takings.*—The shifting of river-courses, though often apparently sudden and sometimes productive of the most important consequences, are always the results of causes working for a long time, and of such a nature that it is quite probable to predict them beforehand. In the case, for example, of the shifting of the channel of the Brahmaputra from the east of the Dacca and Mymensingh districts to the west, a man who had carefully examined the high land to the east of the old channel between Sherpur and Bhairab Bazar, and compared it with the low land to the west of the Madhupur jungle, could have easily foreseen that a great change in the course of that mighty river was inevitable. It is, I think, therefore quite worth while, in a country like Bengal, and in consideration of the interests at stake, to have from time to time the levellings of the country taken along definite lines. At the present moment in the Dacca district by taking proper levellings much useful information may be gathered and some definite ideas may be formed regarding the new river Alum and the future navigability of the Booriganga.

200. *Footpaths for boatmen.*—In going up a river with a strong current, unless the wind be particularly favourable, the means the native boatmen principally adopt, and in many cases the only one they can adopt, is to have the boats towed by one or more tow-lines, locally known as *goons.* But this is only possible where there is a footpath over the bank for the men drawing the *goons* to walk along. In consequence of constant changes in the river-courses, such footpaths are often wanting, and this is especially the case where the necessity for them is greatest. It often happens that in places where the river is encroaching on a bank, the water just below is too deep for the boatmen to walk along or to make use of the boat-pole, and the bank above is up to its very edge studded with trees and houses, making it impracticable to have the boats drawn by the *goons.* The difficulty to which the boatmen are put to, and the serious accidents that often overtake the boats in such places, it will be difficult to exaggerate. Much good would be done, and many accidents prevented, if the Local Boards could, with the aid of the village watchmen, remove the trees and houses from such places, leaving a footpath three to four feet wide along the bank of the river. The expense would, however, be possibly prohibitive.

201. *Practical education in primary schools.*—Education is not gaining in favour with the agricultural classes, and the principal cause of this is to be found in the defective system of training that obtains in all educational institutions of this country. In our primary schools, as in our colleges, too much is made of intellectual superiority, and not a word is ever spoken in praise of honest manual labour. In schools intended for the children of our peasantry, the maintenance of the dignity of winning one's bread with the sweat of the brow should be considered as one of the first duties. To do this much help would be derived if one of the subjects of study be such as require manual work. In this connection the advisability of introducing some sort of agricultural education into these schools should be taken into serious consideration.

202. *Fertility of the district.*—The soil in most parts of the Dacca district is very good—in some places almost unrivalled in fertility—and the facilities for profitable cultivation are very great; but the cultivators as a rule are lazy and devoid of any spirit of enterprise. I have formed a very high opinion of the agricultural resources of that part of the district included in the area of the Madhupur jungle, the soil and the climate of which I think to be very well suited to some of our most paying field crops.

(1) This tract is very well suited to sugarcane, and if properly utilised it can produce sugar sufficient to supply the demands of the whole of Bengal; but the cultivation of sugarcane in the Dacca district is at present extremely limited. The Behea sugarcane mill, which has produced almost a revolution in the sugar-growing districts of Behar and West Bengal, is quite unknown here. The art of gur-making is also little known or practised; so that for almost the whole supply of sugar needed for its consumption, Dacca is dependent on such distant places as Ghazipur and Benares. Of late a great extension

has taken place in the cultivation of sugarcane in the vicinity of the city of Dacca, owing to the enterprising spirit of some up-countrymen in the employ of the Railway and the Municipality. But these men have been working under great disadvantages. They have to pay a rent of some Rs. 6 per bigha for land which for years has been quite neglected, and on which they have little chance of acquiring the right of occupancy.

(2) Cotton was formerly grown extensively on this tract, the soil as well as the physical aspect of the place being well suited to the cultivation of it. The cotton raised here, though somewhat short in staple, was the finest known in any part of the world, and formed the material out of which the delicate and extremely beautiful Dacca muslins were manufactured. Since the decline of that celebrated fabric, the cultivation of cotton has almost entirely ceased in this tract. Considering the high price that cotton fetches in most parts of Bengal, and the improvement that has been effected in the yield of it by the introduction of some of the best American varieties, the cultivation of this important crop may be revived in this locality with great advantage.

(3) The land here will also grow excellent crops of ginger, tobacco, sorghum, turmeric and plantain.

(4) This tract is also suited to rhea, mulberry and *Abroma agusta*, all these plants being found wild here.

(5) No better land perhaps exists in the whole of Lower Bengal than the Madhupur jungle for growing lichee.

203. *Potato cultivation.*—There is a good deal of excellent potato land all over the district, but especially along the Ichhamati, almost throughout its length. Dung of cattle kept on rich food is also available at a low price. Again, the potatoes grown in the Dacca district are of the very best quality available in the plains. Further, as regards the cultivation of this crop, Dacca has a great advantage over the Burdwan and Hooghly districts, in that the potato crop here requires no artificial irrigation. Moreover, it will not be necessary for the ryots to sacrifice the jute crop for the sake of the potatoes, for sufficient time intervenes between the harvesting of jute and the planting of potatoes to have the land well prepared for the latter crop. Notwithstanding all these advantages, the cultivation of potatoes in the Dacca district is limited to an area of less than 50 acres; while in Hooghly and East Burdwan it brings to the pockets of the ryots over 30 lakhs of rupees annually.

204. *Lataghās.*—The cultivation of lataghas ought to be extended to the dearahs of the Manikgunge subdivision, where there is at present a great scarcity of good cattle fodder.

205. *Wheat.*—The black jheel clay of the district is well suited to wheat, and in many parts of the district the cultivation of this crop can be introduced with great advantage. But to grow wheat of good quality it will be necessary to import fresh seed from Behar as frequently as possible.

206. In some of the churs of the district the green vegetable known as *potol* can be very easily grown.

207. The brinjals grown in the Dacca district are of very poor quality. Attempts should be made to introduce here the excellent variety of brinjal under cultivation in the Mymensingh district.

208. *Railway lines.*—Perhaps there is no other railway line in Bengal, the course of which has been so ill-chosen as the Dacca-Mymensingh line. The course that this line ought to have taken was that along the right banks of the Lakhya and the Brahmaputra, keeping close to the great jute-growing tracts of the Dacca and Mymensingh districts. The country along the Lakhya has a fairly good climate, the best water-supply, and undoubtedly the finest scenery in Lower Bengal. It was at one time the seat of independent kings, and the place where the finest Dacca muslins were manufactured. A little effort and enterprise were all that was wanting to turn the villages on both sides of the Lakhya into thriving trade marts, and the jungle in the neighbourhood into smiling fields of sugarcane and cotton. Instead of taking this course, the line now passes through a part of the Madhupur jungle uninhabited and uncultivated, and which, though possessed of great agricultural resources, has, as matters now stand, little chance of being opened up. The line is at present far from being a paying one, and there is no hope of its proving

remunerative in the near future except by the construction of branch lines to tap the principal marts.

209. If any railway extension is in contemplation in the Dacca district, the line that would be most paying and would do the greatest amount of good to the people, both in times of plenty and scarcity, would be that which will connect the following places, namely, Jaffergunge, Gheor, Beutha (Manikgunge), Byra, Kalakopa, Nawabgunge, Karimgunge, Shekernagar, Taltala, Mirkadim, and Moonshigunge. It will be possible afterwards to extend it through the Tangail and the Jamalpore subdivisions as far as the Garo Hills.

210. But the opinion which I have come to on the subject from a study of its geographical configuration, as well as the condition and habits of the people, is that the special wants of the district are neither railways nor ordinary roads, but canals and other facilities for navigation. The rivers, creeks and other water-courses are the highways of commerce here, and boats are by far the most important conveyances. Roads, and especially bridged roads, are not only not much wanted here, but if injudiciously laid out may prove positive impediments to navigation, and consequently to commerce. A case of this nature of great importance came to my personal observation while travelling in the interior of the district during the last rains. There is an old road, extending from Moonshigunge to the police-station of Srinagar, which crosses three very important canals, namely, the Mirkadim, the Taltala, and the Srinagar. Of these the first two canals were bridged over by substantial masonry bridges. The bridge over the Taltala creek was afterwards pulled down, it is said, by an Englishman who was going in a boat through the canal, but was stopped at the bridge, which proved too low for his boat to pass through. This proved a real blessing to navigation, which during the rains is exceedingly brisk through this canal. Sometimes before the last rains, however, two heavy pieces of timber have been laid across the canal to serve as a sort of bridge. This has no doubt proved very convenient to the well-to-do and the educated classes, who would like to have the same facilities given them in rural villages in the interior, for walking with boots on at all seasons of the year, as are to be met with in large cities and towns; but it has become extremely troublesome to many boatmen. Boats of heavy burthen have to be stopped and portions of their superstructure removed before they can pass through this bridge. The roads in the Dacca district want not bridges, well or ill-made, but as many ferries as possible.

211. I would very strongly recommend the excavation or rather deepening of the following canals, as it will not only prove highly beneficial to trade, but if only a small toll be charged on boats passing through them, the capital laid out will in a few years be more than repaid:—

(*a*) *The Taltala creek.*—This creek, which was excavated by one of the sons of Rajballabh, connects the Dhaleswari with the Padma and passes through a populous part of the country. It has in some places, especially towards the Dhaleswari end between Baliganj and Taltala market, silted up, and navigation is now possible only during the rains. The benefits that will be derived by the deepening of this canal will be simply incalculable. It will shorten the communication of Dacca with Faridpur and Barisal by at least 30 miles, a considerable portion of which is of an extremely dangerous character. It will also prove greatly useful from a sanitary point of view by draining a large area of low land and by providing drinking water to villages which, owing to scarcity of good water, are almost every year visited by cholera.

(*b*) *The Ichhamati.*—This small but ancient and important river passes through the most populous part of the district, and has on its sides a number of important trade marts and the best agricultural land in the district. If this river could be opened through the mouth called the Mainat creek, boat communication between Dacca and Goalundo will be greatly facilitated by the reduction of the distance to half its present length and the avoidance of a good portion of a dangerous journey. The expenditure, again, will not be much, for all that will be needed will be to deepen it for a distance of seven miles of the Mainat creek and 1½ miles of the Toolsi creek.

(*c*) *The Hariskul creek.*—This creek passes through the Jamsha plain and connects the Kaliganga with the Ichhamati There are at least three different reasons why this canal should be deepened. It will supply drinking water to

thousands of people who now have to drink a high-coloured, strong-smelling liquid which our sanitarians would find it difficult to explain how it is possible for men to drink and live. The water is so very bad that a large number of fishes die here every year towards the end of the rains, and their dead bodies make the dirty liquid, miscalled water, if possible still more dirty. The excavation of this creek will save a quantity of good food for the people. The cultivators of the Jamsha plain are mostly men living in villages on the Ichhamati. Since the silting up of this canal these men find it exceedingly difficult to bring the produce of their fields home. Formerly they used to bring the unthreshed paddy in small boats, but now they have to put up for nearly a month in temporarily-built huts in a low, wet and unhealthy spot, thresh out the grains, and bring them home as best they can on their heads.

212. In connection with the excavation of canals, it may not be out of place to mention here the extraordinary profits made by the cutting of the Dulai creek. As stated before, this is a small canal about four miles in length, connecting the river Balu with the Booriganga. It cost Rs. 25,000 for its excavation. Now the net income derived from it is Rs. 5,000 a year. But this is not all: it has immensely increased the value of the land on its banks. About 100 bighas of land that did not formerly grow more than Rs. 1,000 worth of paddy, now produce sugarcane worth at least Rs. 5,000 a year.

I have the honour to be,

SIR,

Your most obedient servant,

A. C. SEN,

*Assistant to Director of Agriculture.*

# APPENDIX I.

## RAINFALL.

### Dacca.

| Year. | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1827 ... ... ... | Nil | Nil | 3·90 | 4·80 | 9·10 | 12·90 | 13·60 | 8·10 | 18·60 | 2·40 | Nil | 0·60 | 74·00 |
| 1828 ... ... ... | 0·40 | 0·10 | 0·30 | 1·90 | 4·10 | 8·40 | 9·80 | 8·20 | 9·70 | 3·50 | Nil | 0·40 | 46·80 |
| 1829 ... ... ... | 0·10 | 0·10 | 1·00 | 8·10 | 11·80 | 5·80 | 12·00 | 8·70 | 11·70 | 21·50 | Nil | Nil | 80·80 |
| 1830 ... ... ... | Nil | 1·80 | 10·10 | 9·10 | 17·70 | 10·90 | 10·60 | 14·60 | 6·80 | 9·10 | 3·20 | Nil | 93·90 |
| 1831 ... ... ... | Nil | 3·90 | 4·80 | 7·30 | 10·70 | 28·60 | 8·40 | 15·30 | 6·60 | 5·20 | Nil | Nil | 89·00 |
| 1832 ... ... ... | Nil | 0·70 | 3·60 | 10·20 | 6·60 | 8·20 | 6·00 | 17·70 | 9·60 | 3·50 | Nil | Nil | 66·70 |
| 1833 ... ... ... | Nil | Nil | Nil | 4·50 | 12·40 | 5·10 | 5·10 | 18·60 | 12·20 | 3·20 | 1·00 | 0·70 | 62·80 |
| 1834 ... ... ... | 1·00 | 0·70 | 5·70 | 5·20 | 4·90 | 16·00 | 5·60 | 9·00 | 11·20 | 6·20 | 0·40 | 2·10 | 68·00 |
| 1835—1851 ... ... | Records not available. | | | | | | | | | | | | |
| 1852 ... ... ... | ? | ? | ? | 3·04 | 7·51 | 8·79 | 23·13 | 13·65 | 9·41 | 3·83 | Nil | Nil | 70·26 ? |
| 1853 ... ... ... | Nil | 0·32 | Nil | 1·64 | 8·62 | 11·37 | 17·86 | 5·86 | 24·68 | 1·73 | 0·60 | Nil | 75·68 |
| 1854 ... ... ... | Nil | 1·00 | 1·41 | 8·67 | 4·58 | 20·87 | 17·34 | 10·10 | 8·53 | 7·50 | 1·28 | 0·16 | 81·24 |
| 1855—1859 ... ... | Records not available. | | | | | | | | | | | | |
| 1860 ... ... ... | Nil | 0·55 | 1·22 | 7·41 | 11·09 | 15·67 | 20·83 | 12·32 | 4·51 | 4·73 | ? | ? | 78·33 ? |
| 1861 ... ... ... | 0·97 | Nil | ? | 6·42 | 14·11 | 5·26 | 13·87 | 5·68 | 7·74 | 8·58 | 3·52 | 0·10 | 68·45 ? |
| 1862 ... ... ... | 0·34 | 0·18 | 1·18 | 9·99 | 13·82 | 14·32 | 8·50 | 16·93 | 9·24 | 18·86 | Nil | 0·55 | 93·91 |
| 1863 ... ... ... | Nil | 0·17 | Nil | 9·63 | ? | 8·38 | 7·74 | 21·42 | 5·41 | 8·41 | Nil | Nil | 56·15 ? |
| 1864 ... ... ... | Nil | 0·17 | 2·23 | 3·82 | 13·80 | 20·90 | 17·58 | 15·73 | 8·66 | 8·86 | 0·54 | Nil | 91·79 |
| 1865 ... ... ... | Nil | 0·74 | 1·56 | 14·16 | 9·32 | 14·97 | 21·62 | 6·32 | 4·58 | 2·77 | Nil | Nil | 76·04 |
| 1866 ... ... ... | 0·85 | 1·58 | 0·81 | 6·02 | 7·64 | 19·24 | 6·64 | 10·59 | 6·52 | 5·67 | Nil | Nil | 65·56 |
| 1867 ... ... ... | 0·83 | 0·27 | 1·66 | 4·66 | 4·30 | 4·51 | 15·66 | 9·52 | ? | 3·20 | 5·60 | Nil | 50·21 |
| 1868 ... ... ... | Nil | 4·90 | 0·70 | 9·60 | 5·70 | 15·10 | 8·00 | 17·17 | 14·56 | 0·94 | 0·11 | Nil | 76·78 |
| 1869 ... ... ... | 0·75 | 0·60 | 2·25 | 6·52 | 8·99 | 20·78 | 11·51 | 7·49 | 10·49 | 6·27 | Nil | Nil | 75·65 |
| 1870 ... ... ... | Nil | Nil | 0·75 | 2·40 | 4·10 | 11·00 | 8·20 | 19·30 | 15·70 | 3·70 | 0·10 | Nil | 65·25 |
| 1871 ... ... ... | Nil | Nil | 3·70 | 6·40 | 17·00 | 19·30 | 15·70 | 6·60 | 8·40 | 4·80 | Nil | Nil | 81·90 |
| 1872 ... ... ... | 0·05 | 0·70 | 0·50 | 6·40 | 9·00 | 8·25 | 14·00 | 0·30 | 12·00 | 4·20 | Nil | Nil | 64·40 |
| 1873 ... ... ... | Nil | 0·05 | 1·20 | 5·60 | 4·55 | 9·50 | 16·00 | 17·22 | 3·96 | 0·30 | 0·86 | Nil | 59·24 |
| 1874 ... ... ... | 0·88 | 1·88 | 4·07 | 3·09 | 13·04 | 6·40 | 6·18 | 5·08 | 7·59 | 3·98 | Nil | Nil | 52·19 |
| 1875 ... ... ... | 1·74 | 0·08 | 0·88 | 2·21 | 5·03 | 21·85 | 9·17 | 11·95 | 6·29 | 0·22 | Nil | Nil | 59·42 |
| 1876 ... ... ... | Nil | 0·96 | 3·13 | 3·69 | 10·07 | 9·06 | 16·28 | 11·24 | 16·52 | 2·77 | 2·74 | Nil | 76·46 |
| 1877 ... ... ... | 0·52 | 2·67 | 3·86 | 6·16 | 7·63 | 17·31 | 18·09 | 17·82 | 10·33 | 3·57 | Nil | 0·11 | 88·07 |
| 1878 ... ... ... | 0·73 | 0·55 | 0·30 | 6·47 | 8·36 | 6·58 | 19·16 | 15·92 | 15·31 | 5·85 | 2·31 | 0·50 | 82·04 |
| 1879 ... ... ... | Nil | 0·75 | 0·06 | 0·51 | 4·42 | 14·37 | 20·51 | 13·71 | 13·28 | 6·29 | Nil | 0·90 | 74·80 |
| 1880 ... ... ... | 0·29 | 0·11 | 12·45 | 4·37 | 15·25 | 19·85 | 14·27 | 16·22 | 13·03 | 10·45 | 0·20 | 0·15 | 112·64 |
| 1881 ... ... ... | Nil | Nil | 4·31 | 5·40 | 11·72 | 17·32 | 6·42 | 15·70 | 15·36 | 2·76 | Nil | 0·07 | 79·06 |
| 1882 ... ... ... | 0·30 | 1·45 | 2·08 | 2·25 | 11·35 | 18·07 | 5·69 | 11·39 | 4·46 | 7·53 | 0·61 | Nil | 65·18 |
| 1883 ... ... ... | 0·26 | 0·13 | 1·08 | 5·80 | 7·04 | 8·81 | 19·01 | 7·43 | 3·65 | 1·70 | Nil | 1·59 | 56·50 |
| 1884 ... ... ... | Nil | 1·71 | 1·07 | 6·38 | 10·78 | 11·95 | 8·95 | 6·00 | 6·69 | 3·40 | 0·85 | Nil | 57·78 |
| 1885 ... ... ... | Nil | 2·86 | 3·15 | 3·20 | 7·73 | 16·42 | 9·70 | 12·35 | 10·69 | 3·45 | 0·24 | 0·12 | 69·91 |
| 1886 ... ... ... | Nil | Nil | 5·09 | 6·47 | 7·62 | 14·85 | 16·33 | 19·38 | 11·78 | 1·82 | Nil | 0·03 | 83·37 |
| 1887 ... ... ... | 0·60 | Nil | 3·90 | 2·33 | 6·36 | 8·40 | 14·74 | 9·42 | 5·49 | 4·36 | 1·11 | Nil | 56·71 |
| 1888 ... ... ... | 0·95 | 1·81 | 5·57 | 9·52 | 4·99 | 7·83 | 16·14 | 15·03 | 6·91 | 1·56 | 0·48 | Nil | 70·79 |
| 1889 ... ... ... | 0·34 | 0·99 | 0·11 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

### Moonshigunge.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1872 ... ... ... | ? | ? | ? | ? | ? | ? | 17·75 | 9·40 | 9·20 | 3·67 | — | 0·28 | 40·30 ? |
| 1873 ... ... ... | — | — | 2·34 | 5·03 | 5·83 | 11·90 | 17·23 | 16·25 | 4·46 | 0·46 | — | — | 64·19 |
| 1874 ... ... ... | 0·81 | 1·98 | 2·77 | 5·71 | 11·55 | 8·36 | 9·39 | 7·06 | 11·20 | 6·79 | — | — | 65·62 |
| 1875 ... ... ... | 2·14 | 0·10 | 0·10 | 2·28 | 6·93 | 14·14 | 7·15 | 13·18 | 4·80 | 0·15 | — | — | 50·97 |
| 1876 ... ... ... | — | 1·92 | 3·00 | 2·53 | 6·27 | 16·37 | 23·77 | 15·33 | 22·58 | 6·43 | 7·19 | — | 105·39 |
| 1877 ... ... ... | 1·43 | 4·48 | 8·09 | 10·21 | 10·48 | 25·83 | 27·64 | 17·59 | 15·69 | 2·94 | 0·50 | 0·22 | 126·00 |
| 1878 ... ... ... | 0·88 | 0·48 | 1·30 | 3·82 | 15·41 | 11·19 | 17·04 | 20·61 | 10·85 | 6·90 | 1·17 | 0·50 | 90·15 |
| 1879 ... ... ... | Nil | 0·32 | Nil | 0·89 | 3·90 | 17·14 | 24·16 | 19·35 | 16·64 | 6·94 | Nil | 0·36 | 89·08 |
| 1880 ... ... ... | 0·52 | 8·78 | 11·85 | 3·21 | 12·74 | 22·64 | 16·77 | 16·05 | 24·65 | 14·26 | Nil | 0·26 | 126·71 |
| 1881 ... ... ... | Nil | Nil | 12·27 | 8·97 | 14·13 | 27·20 | 12·36 | 22·21 | 15·20 | 2·28 | Nil | Nil | 114·64 |
| 1882 ... ... ... | 0·12 | 1·47 | 2·57 | 1·70 | 10·26 | 18·06 | 9·83 | 15·27 | 11·83 | 12·82 | 1·81 | Nil | 85·74 |
| 1883 ... ... ... | 0·98 | 0·52 | 2·73 | 3·79 | 0·21 | 7·47 | 19·09 | 9·64 | 3·82 | 6·01 | Nil | 3·53 | 63·79 |
| 1884 ... ... ... | Nil | 1·22 | Nil | 9·94 | 8·60 | 15·41 | 8·82 | 11·28 | 12·05 | 5·50 | 1·24 | Nil | 74·06 |
| 1885 ... ... ... | Nil | 3·10 | 2·62 | 3·86 | 11·54 | 16·02 | 8·69 | 14·12 | 13·33 | 4·93 | 0·25 | 0·20 | 79·56 |
| 1886 ... ... ... | 0·27 | Nil | 4·51 | 5·12 | 11·95 | 21·41 | 23·23 | 24·16 | 17·23 | 3·27 | Nil | Nil | 110·15 |
| 1887 ... ... ... | 0·81 | 0·39 | 4·81 | 1·11 | 6·25 | 12·95 | 9·87 | 6·52 | 3·25 | 4·21 | 1·25 | Nil | 51·42 |
| 1888 ... ... ... | 0·61 | 0·79 | 5·36 | 8·37 | 3·32 | 11·59 | 22·28 | 12·14 | 10·55 | 1·47 | 1·07 | Nil | 78·55 |
| 1889 ... ... ... | 0·45 | 0·19 | 0·09 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

### Naraingunge.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1883 ... ... ... | ? | ? | ? | ? | ? | 10·64 | 21·35 | 6·72 | 4·01 | 3·11 | Nil | 1·88 | 48·31 ? |
| 1884 ... ... ... | Nil | 1·01 | 0·05 | 5·81 | 7·21 | 10·45 | 6·70 | 7·98 | 11·80 | 5·83 | 1·45 | Nil | 57·90 |
| 1885 ... ... ... | Nil | 2·45 | 3·39 | 3·05 | 11·15 | 16·37 | 11·61 | 11·76 | 19·44 | 3·89 | 0·27 | 0·15 | 83·53 |
| 1886 ... ... ... | 0·11 | Nil | 4·82 | 4·24 | 10·81 | 17·28 | 19·60 | 22·04 | 16·13 | 2·27 | Nil | Nil | 97·30 |
| 1887 ... ... ... | 1·05 | 0·26 | 4·13 | 1·17 | 4·62 | 10·41 | 11·53 | 7·20 | 4·38 | 5·84 | 1·18 | Nil | 51·77 |
| 1888 ... ... ... | 0·51 | 2·16 | 6·22 | 11·28 | 4·36 | 13·47 | 22·89 | 12·07 | 6·96 | 2·28 | 0·71 | Nil | 83·83 |
| 1889 ... ... ... | 0·29 | 1·04 | 0·03 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

# APPENDIX I—*concluded.*

## Manikgunge.

| Year. | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1872 ... .. ... | ? | ? | ? | ? | ? | ? | ? | 7·30 | 5·13 | 5·15 | Nil | Nil | 17·58 ? |
| 1873 ... ... ... | Nil | Nil | 0·26 | 6·33 | 3·71 | 4·79 | 10·21 | 15·87 | 6·66 | 0·31 | Nil | Nil | 48·14 |
| 1874 ... .. . | 0·89 | 2·06 | 2·18 | 2·42 | 13·54 | 4·65 | 5·13 | 8·47 | 15·80 | 2·09 | Nil | Nil | 53·22 |
| 1875 ... ... ... | 1·30 | 0·14 | 0·24 | 3·35 | 9·36 | 18·55 | 7·90 | 8·18 | 4·30 | 1·59 | Nil | Nil | 55·00 |
| 1876 ... ... . | Nil | 0·30 | 1·71 | 4·44 | 9·83 | 10·81 | 17·04 | 12·61 | 11·50 | 4·93 | 1·39 | Nil | 74·56 |
| 1877 ... .. ... | 1·74 | 1·51 | 0·65 | 4·07 | 6·81 | 13·52 | 25·20 | 17·28 | 6·07 | 2·19 | 0·22 | 0·49 | 80·65 |
| 1878 ... . | 0·83 | 0·34 | 0·84 | 4·51 | 5·25 | 3·08 | 19·84 | 15·35 | 13·54 | 0·91 | 1·86 | 0·22 | 65·87 |
| 1879 ... . .. | Nil | 1·35 | 0·09 | 4·50 | 4·10 | 10·01 | 10·44 | 14·09 | 5·13 | 10·32 | Nil | 0·25 | 60·28 |
| 1880 ... .. ... | 0·25 | 7·19 | 1·91 | 3·21 | 11·03 | 11·48 | 8·90 | 13·72 | 11·05 | 8·48 | 0·02 | 0·04 | 77·29 |
| 1881 ... ... | Nil | 0·13 | 3·69 | 2·87 | 11·68 | 13·89 | 7·32 | 11·57 | 10·83 | 2·38 | Nil | Nil | 64·26 |
| 1882 . ... ... | 0·60 | 1·36 | 3·73 | 3·96 | 14·51 | 7·61 | 5·34 | 9·47 | 2·22 | 7·67 | 1·62 | Nil | 58·29 |
| 1883 ... ... ... | 0·65 | 0·21 | 1·00 | 4·60 | 8·15 | 4·53 | 15·06 | 8·16 | 1·77 | 1·73 | Nil | 0·95 | 46·81 |
| 1884 .. ... ... | Nil | 0·64 | 0·94 | 5·22 | 10·09 | 13·63 | 9·17 | 8·13 | 5·95 | 2·71 | 0·21 | Nil | 56·69 |
| 1885 ... . ... | Nil | 2·26 | 1·77 | 1·57 | 10·26 | 18·01 | 10·38 | 13·62 | 13·83 | 3·40 | Nil | 0·10 | 81·20 |
| 1886 ... ... ... | Nil | Nil | 4·03 | 3·58 | 9·88 | 5·33 | 18·03 | 16·06 | 11·90 | 4·91 | Nil | Nil | 69·51 |
| 1887 ... ... ... | 0·88 | Nil | 5·65 | 1·44 | 4·69 | 7·82 | 8·57 | 6·04 | 8·93 | 3·67 | 0·79 | Nil | 46·08 |
| 1888 ... ... .. | 0·46 | 0·88 | 2·71 | 7·58 | 5·61 | 6·29 | 14·43 | 14·69 | 3·94 | 1·03 | 0·36 | Nil | 57·98 |
| 1889 ... ... .. | 1·69 | 0·20 | Nil | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

## Joydebpore.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1885 ... .. ... | ? | ? | ? | ? | ? | ? | ? | ? | 10·22 | 2·97 | 1·60 | 0·07 | 14·86 ? |
| 1886 ... ... ... | Nil | Nil | 2·88 | 2·71 | 6·15 | 13·69 | 12·14 | 18·59 | 19·81 | 1·88 | 0·08 | Nil | 77·93 |
| 1887 ... ... ... | 1·61 | Nil | 6·66 | 2·66 | 5·96 | 14·78 | 14·62 | 12·49 | 2·46 | 4·42 | 0·37 | Nil | 66·03 |
| 1888 ... ... ... | 0·20 | 0·86 | 4·01 | 6·86 | 10·54 | 10·45 | 18·28 | 15·29 | 4·03 | 1·15 | 0·49 | Nil | 72·07 |
| 1889 ... . | 0·37 | 0·24 | 0·01 | 3·99 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

# APPENDIX II.

*Table of Temperature and Cloud proportion.*

| Years. | May. | | | | July. | | | | December. | | | | Cloud proportion. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean of maximum. | Mean of minimum. | Highest readings. | Lowest readings. | Mean of maximum. | Mean of minimum. | Highest readings. | Lowest readings. | Mean of maximum. | Mean of minimum. | Highest readings. | Lowest readings. | January to May. | June to September. | October to December. |
| 1874 ... . . | 91·8 | 76·3 | ... | ... | 88·7 | 79·8 | ... | ... | 77·3 | 55·7 | ... | ... | ..... | ..... | ..... |
| 1875 ... .. . | 91·6 | 75·3 | ... | ... | 87·8 | 79·3 | ... | ... | 79·7 | 56·5 | ... | ... | ..... | ..... | ..... |
| 1876 ... ... | 90·8 | 75·5 | 95·2 | 69·8 | ... | 78·5 | ... | 75·6 | 77·2 | 55·4 | 79·7 | 52·3 | 2·85 | 8·09 | 2·77 |
| 1877 ... | 91·3 | 75·3 | 95·3 | 69·3 | 88·1 | 79·4 | 92·8 | 75·6 | 79·4 | 57·8 | 84·5 | 53·2 | 3·99 | 7·83 | 3·2 |
| 1878 ... ... ... | 90·5 | 75·4 | 95·9 | 67·3 | 89·4 | 80· | 92·1 | 76·3 | 80·1 | 59·7 | 87·2 | 52·9 | 3·67 | 7·4 | 3·42 |
| 1879 ... ... . | 95· | 78·6 | 99·3 | 66·6 | 87·1 | 79·4 | 91· | 76·3 | 78·3 | 57·7 | 85· | 52·4 | 2·52 | 8· | 3 |
| 1880 ... . . | 90·3 | 75·9 | 93·8 | 66· | 88·3 | 79·2 | 91·3 | 76·3 | 76·9 | 55·4 | 80·6 | 50·7 | 3·53 | 7·65 | 3·03 |
| 1881 ... ... .. | 90·2 | 76·4 | 95·5 | 69·3 | 89·4 | 79·9 | 92·6 | 77·6 | 78·7 | 57·3 | 81·9 | 54·2 | 3·11 | 8·17 | 1·89 |
| 1882 ... ... ... | 90· | 74·4 | 96·7 | 66·1 | 86·7 | 76·9 | 90·1 | 74·6 | 77·8 | 59·9 | 82·1 | 53·2 | 3·37 | 7·3 | 4·28 |
| 1883 ... \ . | 90·4 | 75·8 | 93· | 68·7 | 88·4 | 78·9 | 93·8 | 75· | 76·5 | 55·7 | 83·5 | 50·4 | 3·15 | 7·07 | 2·28 |
| 1884 ... ... ... | 89·3 | 74·2 | 94·8 | 66· | 88·5 | 78·6 | 92· | 76· | 77·6 | 54·8 | 79·2 | 52·1 | 2·62 | 6·33 | 2·23 |
| 1885 ... .. .. | 91·4 | 73·7 | 95·7 | 65· | 88·6 | 79·1 | 93·3 | 76·7 | 77·9 | 59·5 | 87·8 | 54·6 | 2·6 | 7·5 | 3· |
| 1886 ... .. . | 91· | 76·2 | 98·2 | 69·1 | 87·9 | 78·8 | 91·8 | 76·1 | 79·0 | 59·3 | 85·1 | 56· | 2·3 | 8·4 | 2·7 |
| 1887 . .. ... | 91·4 | 77·4 | 98·1 | 68·6 | 88·7 | 79·1 | 92·1 | 76·7 | 79· | 55·6 | 84·1 | 50·7 | 3·1 | 7·2 | 2·4 |

# APPENDIX III.

## KHAS MEHALS.

| Number of estate. | Name of estate. | Approximate area. Surveyed. | Approximate area. Not surveyed. | If surveyed, in what year surveyed. |
|---|---|---|---|---|
| | | B. C. D. | | |
| 1 | Estate No. 326, Tuppeh Mirackpur, hissa 8 annas, Ramkanai Ray ... .. | 105 16 18 | ..... | 1873 |
| 2 | " " 372, Moujah Ulail Anantaram, Hari Krishna ... ... ... | 166 16 3 | ..... | 1883 |
| 3 | " " 548, Bazar Faridabad ... ... | 272 18 7 | ..... | 1868 |
| 4 | " " 629, Taluk Gadadhar Ghosh .. | 79 15 8½ | ..... | 1875 |
| 5 | " " 992 " Harideb Thakur ... | 147 4 18 | ..... | 1879 |
| 6 | " " 1324 " Anandi Ram Roy ... | 13 14 6 | ..... | 1877 |
| 7 | " " 1335 " Bainkola ... ... | 60 10 0 | ..... | 1881 |
| 8 | " " 1683 " Joy Sing Gupta ... | 4 10 7 | ..... | 1876 |
| 9 | " " 1762 " Rajib Rudra ... ... | 9 17 7 | ..... | 1878 |
| 10 | " " 2658 " Radhakant Basu ... | 10 10 7 | ..... | 1878 |
| 11 | " " 3748 " Kirti Narayan Sarmah ... | 3 4 3¾ | ..... | 1879 |
| 12 | " " 4437 " Ram Narayan Sarkar ... | 2 1 14 | ..... | 1877 |
| 13 | " " 4694 " Newaj Mamud .. | 19 18 18 | ..... | 1881 |
| 14 | " " 6501 " Gouri Sankar Mitra ... | 15 14 10 | ..... | 1883 |
| 15 | " " 6507, Haola Ram Gobindo Sen ... | 3 10 7 | ..... | 1884 |
| 16 | " " 6700, Taluk Raj Ballav Kunda ... | 12 14 1 | ..... | 1883 |
| 17 | " " 7000, Haola Raghunath Kunda .. | 11 12 9 | ..... | 1883 |
| 18 | " " 7120, Taluk Krishna Shib Rama Nunda Bachospati ... | 12 15 9 | ..... | 1884 |
| 19 | " " 7442, Haola Krishna Jibon Haldar ... | 1 17 0 | ..... | 1877 |
| 20 | " " 7658, Taluk Ram Gopal Mazumdar ... | 3 17 8 | ..... | 1802 |
| 21 | " " 7661 " Ram Nath Chandi Charan | 38 16 13 | ..... | 1872 |
| 22 | " " 7667 " Ram Kisore, Kasi Sarmah | 2 18 10 | ..... | 1871 |
| 23 | " " 7863 " Tara Chand, Ram Lochan Sarmah ... ... | 1 5 10 | ..... | 1880 |
| 24 | " " 7898 " Ram Nath Bhim, Haola Banga Kala Chand ... | 9 1 4 | ..... | 1878 |
| 25 | " " 7963 " Rati Nath Das ... | 2,256 13 1 | ..... | 1884 |
| 26 | " " 8177 " Jadob Roy ... ... | 43 7 0 | ..... | 1869 |
| 27 | " " 8179 " Ram Kisore Daulatgar ... | 0 0 14 | ..... | 1880 |
| 28 | " " 8227 " Guneswar Karmakar ... | 0 1 1 | ..... | 1877 |
| 29 | " " 8228 " Brindaban Saha ... | 94 11 2 | ..... | 1868 |
| 30 | " " 8377, Fishery Khodadadpur ... | No land. | | |
| 31 | " " 8386, Taluk Mukunda Ram Sen ... | 5 19 11 | ..... | 1871 |
| 32 | " " 8389, Mehal Gazar ... ... | 14 12 16 | ..... | 1883-84 |
| 33 | " " 8390, Bazar Khizirpur ... ... | 144 12 13 | ..... | 1871 |
| 34 | " " 8391, Taluk Chandhurian ... ... | 123 13 19 | ..... | 1882 |
| 35 | " " 8393, Mehal Khurdia ... | 137 2 19 | ..... | 1883-84 |
| 36 | " " 8397, Taluk Krishna Ballav Manik ... | 27 15 1 | ..... | 1882 |
| 37 | " " 8398, Kismut Sasangaon ... ... | 52 4 9 | ..... | 1872-73 |
| 38 | " " 8564, Taluk Jasamanta Das ... | 13 17 5 | ..... | 1879 |
| 39 | " " 8571, " Krishna Ram Gobinda ... | 40 17 13¼ | ..... | 1875 |
| 40 | " " 8402, " Hari Ballav Manick ... | 35 11 4 | ..... | 1838 |
| 41 | " " 8407, " Bagicha Olendaj ... | 40 4 3½ | ..... | 1842 |
| 42 | " " 8409, " Ram Prasad Ramjebon ... | 324 3 6 | ..... | 1873 |
| 43 | " " 8439, " Mukundaram Mittra ... | 11 16 2 | ..... | 1878 |
| 44 | " " 8488, " Ram Ram Das ... ... | 50 9 9 | ..... | 1872 |
| 45 | " " 8489, " Haris Chandra Sen ... | 67 12 13 | ..... | 1872 |
| 46 | " " 8492, " Ram Ram Basu .. | 23 0 15 | ..... | 1868 |
| 47 | " " 8498, " Ramkisore Dutta ... | 68 14 19 | ..... | 1883 |
| 48 | " " 8501, " Ram Mohan Pani ... | 44 15 10 | ..... | 1876-77 |
| 49 | " " 8509, " Mohes Dás Rakhit ... | 156 17 14 | ..... | 1881 |
| 50 | " " 8531, " Gopi Jagut ... ... | 40 3 7 | ..... | 1873 |
| 51 | " " 8532, " Asam Ram Roy ... | 807 3 2½ | ..... | 1872-73 |
| 52 | " " 8533, " Bishun Prasad Sing ... | 161 8 12½ | ..... | 1872-73 |
| 53 | " " 8536, " Ram Kisore Basu ... | 42 3 10 | ..... | 1873 |
| 54 | " " 8572, " Mca Khan ... ... | 5 16 18 | ..... | 1878 |
| 55 | " " 8575, " Ram Nath Guha ... | 13 1 15 | ..... | 1879 |
| 56 | " " 8595, " Janed Rasid ... ... | 20 19 1 | ..... | 1871-72 |
| 57 | " " 8620, " Muze Hari ... ... | 115 17 2 | ..... | 1878 |
| 58 | " " 8629, " Krishna Mohan Ghose ... | 57 1 19 | ..... | 1872 |
| 59 | " " 8630, " Ram Kisore Basu ... | 31 9 14 | ..... | 1874 |
| 60 | " " 8631, " Rahim Khan ... ... | 3 16 15 | ..... | 1879 |
| 61 | " " 8641, " Bhabani Atmaram ... | 12 2 9½ | ..... | 1871 |
| 62 | " " 8678, Fishery Nayanadi Rath Khola ... | Being a fishery, there is no land. | | |
| 63 | " " 8679, Taluk Ram Sharan Dás .. | 0 19 12 | ..... | 1872 |
| 64 | " " 8696, " Bacha Ram Das ... | 97 16 5½ | ..... | 1872 |
| 65 | " " 8743, " Hriday Ram Ghose ... | 0 5 12½ | ..... | 1870 |
| 66 | " " 8776, " Raghu Nath Sen ... | 25 8 2 | ..... | 1871-72 |
| 67 | " " 8793, " Ulfut Shaha Fakinni .. | 2 5 12 | ..... | 1874 |
| 68 | " " 8810, Nawabpurer police-station ... | 0 1 6 | ..... | 1879-80 |

| Number of estate. | Name of estate. | Approximate area. Surveyed. | Approximate area. Not surveyed. | If surveyed, in what year surveyed. |
|---|---|---|---|---|
| | | B. C. D. | B. C. D. | |
| 69 | Estate No. 8813, Taluk Gopi Kanta Chakrabarti ... | 14 8 15 | ..... | 1884 |
| 70 | ,, ,, 8941, ,, Bhola Ram Saha ... | 1,928 13 0 | ..... | 1873 |
| 71 | ,, ,, 8954, ,, Shujaially and others ... | 131 8 11¾ | ..... | 1877 |
| 72 | ,, ,, 9258, ,, Grida Killa ... ... | 36 19 6 | ..... | 1880 |
| 73 | ,, ,, 9429-10, Kismat Khanda Shardi ... | 15 13 11 | ..... | 1879 |
| 74 | ,, ,, 9429-11, ,, Gabtoli ... ... | 69 6 17 | ..... | 1878-79 |
| 75 | ,, ,, 9429-12, Kismat Doulerbag ... | 87 7 6 | ..... | 1877 |
| 76 | ,, ,, 9429-13, Arjoon Chur ... ... | 949 11 11 | ..... | 1875 |
| 77 | ,, ,, 9429-14, Ditto ... ... | 898 12 15 | ..... | 1875 |
| 78 | ,, ,, 9429-17, Asrafpur ... ... | 1,484 5 19½ | ..... | 1870 |
| 79 | ,, ,, 9429 25, Gazaria ... ... | 539 14 7 | ..... | 1856 |
| 80 | ,, ,, 9429-26, Goragaon ... ... | 470 10 3 | ..... | 1855 |
| 81 | ,, ,, 9429-32, Goor Jaymongol ... ... | 3,544 15 9 | ..... | 1874 |
| 82 | ,, ,, 9429-36, Dhanna ... ... | 702 6 16 | ..... | 1854 |
| 83 | ,, ,, 9429-47, Bholanagore ... ... | 358 11 9 | ..... | 1874 |
| 84 | ,, ,, 9420-56, Gobindpur ... ... | 4,634 2 16 | ..... | 1874 |
| 85 | ,, ,, 9429-58, Joar Lakhipur ... ... | 6,943 9 5 | ..... | 1852 |
| 86 | ,, ,, 9429-59, Ditto ... ... | 573 4 7 | ..... | 1874 |
| 87 | ,, ,, 9429-60, Mouje Mandalia ... ... | 344 17 15 | ..... | 1874 |
| 88 | ,, ,, 9426-61, Joar Shapmara ... ... | 197 13 2 | ..... | 1854 |
| 89 | ,, ,, 9429-62, Ditto ... ... | 30 0 0 | ..... | 1868 |
| 90 | ,, ,, 9429-63, Gauri Bhanga ... ... | 160 17 5 | ..... | 1850 |
| 91 | ,, ,, 9429-68, Gazaria ... ... | 260 1 10 | ..... | 1872 |
| 92 | ,, ,, 9429-67, Shapmara ... ... | 1,853 1 11 | ..... | 1862 |
| 93 | ,, ,, 9429-72, Haridhon ... ... | Fishery. | | |
| 94 | ,, ,, 9430, Bakhar Nagar ... ... | 2,320 2 6 | ..... | 1879 |
| 95 | ,, ,, 2962, Chur north of Chandpur ... | 699 7 14 | ..... | 1876 |
| 96 | ,, ,, 9731, Chur Janajat ... ... | 24,512 1 10 | ..... | 1879 |
| 97 | ,, ,, 9761, Aralia Baghaiakandi ... | 3,629 16 7 | ..... | 1859 |
| 98 | ,, ,, 9871, Kajipur ... ... ... | There are two plots of lands settled separately— Plot I— 7 7 5 Plot II— 0 6 5 | ..... | 1865 |
| 99 | ,, ,, 9974, Hari Krishna Jugol Krishna Basu | 13 8 6 | ..... | 1865 |
| 100 | ,, ,, 9997, Bachamara ... ... | 9,511 3 8 | ..... | 1881-82 |
| 101 | ,, ,, 10095, Mir Murad's Bazar ... ... | 0 1 17¾ | ..... | 1875 |
| 102 | ,, ,, 10298, Taluk Dhirasram ... ... | 59 2 11 | ..... | 1881 |
| 103 | ,, ,, 10313, ,, Ganga Hari Bhattacharya | ..... | 20 2 8¾ | ..... |
| 104 | ,, ,, 10317, ,, ditto ... | ..... | 11 6 6½ | ..... |
| 105 | ,, ,, 10318, ,, Sristi Dhur Sen ... | 564 10 17 | ..... | 1878 |
| 106 | ,, ,, 10456, Island near Ramjanbeg ... | 83 6 8 | ..... | 1884 |
| 107 | ,, ,, 10501, Chur near Haramjada .. | 648 16 10 | ..... | 1884 |
| 108 | ,, ,, 10503, Chur Chashi ... ... | 2,084 18 10 | ..... | 1884 |
| 109 | ,, ,, 10506, Daudkandi Kalikapur ... | 1,015 19 5½ | ..... | 1879 |
| 110 | ,, ,, 10741, Begamabad ... ... | 2,056 9 17 | ..... | 1877 |
| 111 | ,, ,, 10742, Painpara ... ... | 4,007 6 10 | ..... | 1884 |
| 112 | ,, ,, 10744, Chur Abdulapur ... ... | 919 17 0 | ..... | 1878 |
| 113 | ,, ,, 10776, Island near Rahatpur, Mahaddinagore. | 1,036 11 17 | ..... | 1880 |
| 114 | ,, ,, 10779, Island in river Jamuna ... | 192 0 0 | ..... | 1883 |
| 115 | ,, ,, 10810, Teradona ... ... | 36 2 6 | ..... | 1878 |
| 116 | ,, ,, 10811, Chur Khuni ... ... | 111 6 9¼ | ..... | 1882 |
| 117 | ,, ,, 10812, Alluvial accretion to Kalmi ... | 260 9 13 | ..... | 1878 |
| 118 | ,, ,, 10814, Island near Haramjada ... | 287 0 0 | ..... | 1875 |
| 119 | ,, ,, 10834, Debi Dás Acharjea .. ... | 13 0 4½ | ..... | 1880 |
| 120 | ,, ,, 10835, Taluk Ram Charan Dás ... | 9 5 0¼ | ..... | 1885 |
| 121 | ,, ,, 10836, ,, Raghu Deb Biswas ... | 19 13 3¼ | ..... | 1881 |
| 122 | ,, ,, 10837, ,, Pitamber Sen ... ... | 16 15 8½ | ..... | 1881 |
| 123 | ,, ,, 10906, Island in river Buriganga ... | 292 19 12 | ..... | 1883 |

## APPENDIX IV.

*Prices of Common Rice and Salt at Dacca.*

| | Common rice. Number of seers per rupee. | Salt. Number of seers per rupee. |
|---|---|---|
| 1861 ... ... ... ... | 29·18 | 8·74 |
| 1862 ... ... ... ... | 31·58 | 8·74 |
| 1863 ... ... ... ... | 29· | 8·2 |
| 1864 ... ... ... ... | 25· | 9·29 |
| 1865 ... ... ... ... | 18·04 | 9·29 |
| 1866 ... ... ... ... | 10·63 | 8·48 |
| 1867 ... ... ... ... | 21·41 | 8·48 |
| 1868 ... ... ... ... | 28·86 | 8·2 |
| 1869 ... ... ... ... | 17·55 | 8·74 |
| 1870 ... ... ... ... | 19·28 | 8·74 |
| 1871 ... ... ... ... | 20·8 | 7·98 |
| 1872 ... ... ... ... | 25· | 8·62 |
| 1873 ... ... ... ... | 23·2 | 8·66 |
| 1874 ... ... ... ... | 12·31 | 8·19 |
| 1875 ... ... ... ... | 17·64 | 8·73 |
| 1876 ... ... ... ... | 18·78 | 8·87 |
| 1877 ... ... ... ... | 15·2 | 8·96 |
| 1878 ... ... ... ... | 11·56 | 8·92 |
| 1879 ... ... ... ... | 11·75 | 8·95 |
| 1880 ... ... ... ... | 12·88 | 9·54 |
| 1881 ... ... ... ... | 23· | 9·85 |
| 1882 ... ... ... ... | 23·33 | 12·38 |
| 1883 ... ... ... ... | 22·63 | 12·44 |
| 1884 ... ... ... ... | 14·73 | 12·77 |
| 1885 ... ... ... ... | 16·21 | 12·97 |
| 1886 ... ... ... ... | 16·83 | 11·29 |
| 1887 ... ... ... ... | 19·3 | 11·96 |

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## APPENDIX V.

*The months of the year.*

| Bengali months. | | Corresponding English months. | | |
|---|---|---|---|---|
| Baisakh ... ... ... | From about | 15th April | to | 15th May. |
| Jyaistha ... ... ... | ,, | 15th May | to | 15th June. |
| Ashar ... ... ... | ,, | 15th June | to | 15th July. |
| Sravan ... ... ... | ,, | 15th July | to | 15th August. |
| Bhadra ... ... ... | ,, | 15th August | to | 15th September. |
| Aswin ... ... ... | ,, | 15th September | to | 15th October. |
| Kartik ... ... ... | ,, | 15th October | to | 15th November. |
| Agrahayan ... ... | ,, | 15th November | to | 15th December. |
| Pous ... ... ... | ,, | 15th December | to | 15th January. |
| Magh ... ... ... | ,, | 15th January | to | 15th February. |
| Falgoon ... ... ... | ,, | 15th February | to | 15th March. |
| Chaitra ... ... ... | ,, | 15th March | to | 15th April. |

# APPENDIX VI.

## LAND MEASURES.

THE land measures of the district are pikhi and kani. The kani is used only in the Vikrampur pergunnah, and the pikhi in the rest of the district. Towards the north-east a pikhi is called a kani. The higher and inferior denominations of the measures are given below—

| *Pikhi.* | *Kani.* |
|---|---|
| 1 khada = 16 pikhis. | 1 drun = 16 kanis. |
| 1 pikhi = 7½ gundas. | 1 kani = 4 kunis. |
| 1 gunda = 4 kuras. | 1 kuni = 5 gundas. |
| 1 kura = 4 kaks. | 1 gunda = 4 kuras. |
| | 1 kura = 3 krants. |

A pikhi is equal to the space enclosed by 12 nals by 10 nals. The length of the nal varies between 6 and 8 cubits; usually it is equal to 7 cubits.

A kani is equal to the space enclosed by 24 nals by 20 nals. The length of the nal varies between 7 and 9 cubits; usually it is equal to 7·5 cubits.

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# APPENDIX VII.

## TRADE STATISTICS.

| Names of marts. | Names of articles. | Import. | | Export. | |
|---|---|---|---|---|---|
| | | Quantity. | Money value. | Quantity. | Money value. |
| | | Mds. | Rs. | Mds. | Rs. |
| Mirpur ... | Unrefined sugar ... ... | ..... | 12,000 | ..... | ..... |
| | Salt ... ... | ..... | 11,375 | ..... | ..... |
| | Oil ... ... | ..... | 40,625 | ..... | ..... |
| | Tobacco ... ... | ..... | 6,250 | ..... | ..... |
| | Rab gur ... ... | ..... | 2,250 | ..... | ..... |
| | Turmeric ... ... | ..... | 2,925 | ..... | ..... |
| | Chilly ... ... | ..... | 9,000 | ..... | ..... |
| | Pulse and grain ... ... | ..... | 2,600 | ..... | ..... |
| | Sugar ... ... | ..... | 24,800 | ..... | ..... |
| | Kerosine-oil ... ... | ..... | 5,000 | ..... | ..... |
| | Betel-nut ... ... | ..... | 3,700 | ..... | ..... |
| | Ghee ... ... | ..... | 725 | ..... | ..... |
| | Chira ... ... | ..... | 7,500 | ..... | ..... |
| | Wood plank, &c. ... | ..... | 7,500 | ..... | ..... |
| | Paddy ... ... | ..... | 3,06,250 | ..... | ..... |
| | Rice ... ... | ..... | 21,000 | ..... | ..... |
| | Betel ... ... | ..... | 1,500 | ..... | ..... |
| | Spices and other baniati articles. | ..... | 2,500 | ..... | ..... |
| | Cloths ... ... | ..... | 16,500 | ..... | ..... |
| | Onions ... ... | ..... | 688 | ..... | ..... |
| | Garlic ... ... | ..... | 350 | ..... | ..... |
| | Fancy articles ... ... | ..... | 550 | ..... | ..... |
| Narisa ... | Unrefined sugar ... ... | ..... | 3,000 | ..... | ..... |
| | Salt ... ... | ..... | 3,250 | ..... | ..... |
| | Oil ... ... | ..... | 8,100 | ..... | ..... |
| | Tobacco ... ... | ..... | 1,400 | ..... | ..... |
| | Rab gur ... ... | ..... | 613 | ..... | ..... |
| | Turmeric ... ... | ..... | 150 | ..... | ..... |
| | Chilly ... ... | ..... | 1,376 | ..... | ..... |
| | Pulse and grain ... ... | ..... | 1,100 | ..... | ..... |
| | Sugar ... ... | ..... | 2,475 | ..... | ..... |
| | Kerosine-oil ... ... | ..... | 5,000 | ..... | ..... |
| | Betel-nut ... ... | ..... | 175 | ..... | ..... |
| | Paddy ... ... | ..... | 1,17,188 | ..... | ..... |
| | Rice ... ... | ..... | 825 | ..... | ..... |
| | Betel ... ... | ..... | 800 | ..... | ..... |
| | Spices and other baniati articles. | ..... | 3,250 | ..... | ..... |
| | Cloths ... ... | ..... | 12,500 | ..... | ..... |
| Dhamroy ... | Unrefined sugar ... ... | ..... | 8,650 | ..... | ..... |
| | Salt ... ... | ..... | 5,200 | ..... | ..... |
| | Oil ... ... | ..... | 5,500 | ..... | ..... |

| Names of marts. | Names of articles. | Import. | | Export. | |
|---|---|---|---|---|---|
| | | Quantity. | Money value. | Quantity. | Money value. |
| | | Mds. | Rs. | Mds. | Rs. |
| Dhamroy ... | Tobacco ... ... | ..... | 5,500 | ..... | ..... |
| | Rab gur ... ... | ..... | 2,500 | ..... | ..... |
| | Turmeric ... ... | ..... | 1,400 | ..... | ..... |
| | Chilly ... ... | ..... | 2,250 | ..... | ..... |
| | Pulse and grain ... ... | ..... | 2,200 | ..... | ..... |
| | Sugar ... ... | ..... | 23,100 | ..... | ..... |
| | Kerosine-oil ... ... | ..... | 5,000 | ..... | ..... |
| | Betel-nut ... ... | ..... | 7,200 | ..... | ..... |
| | Ghee ... ... | ..... | 960 | ..... | ..... |
| | Paddy ... ... | ..... | 45,000 | ..... | ..... |
| | Rice ... ... | ..... | 70,000 | ..... | ..... |
| | Betel ... ... | ..... | 5,750 | ..... | ..... |
| | Spices and other baniati articles ... ... | ..... | 80,000 | ..... | ..... |
| | Cloths ... ... | ..... | 85,000 | ..... | ..... |
| | Fancy articles ... ... | ..... | 35,000 | ..... | ..... |
| | Country cloths ... ... | ..... | 18,000 | ..... | ..... |
| | Brass utensils ... ... | ..... | 21,700 | ..... | ..... |
| | Shell work ... ... | ..... | ..... | ..... | 20,000 |
| Madangunge | Turmeric ... ... | ..... | 4,000 | ..... | ..... |
| | Chilly ... ... | ..... | 52,000 | ..... | ..... |
| | Sugar ... ... | ..... | 52,000 | ..... | ..... |
| | Betel-nut ... ... | ..... | 84,000 | ..... | ..... |
| | Paddy ... ... | ..... | 76,700 | ..... | ..... |
| | Rice ... ... | ..... | 1,55,000 | ..... | ..... |
| | Mustard ... ... | ..... | 1,01,100 | ..... | ..... |
| | Jute ... ... | ..... | 15,21,000 | ..... | ..... |
| | Linseed ... ... | ..... | 1,00,000 | ..... | ..... |
| | Cocoanuts ... ... | ..... | 25,000 | ..... | ..... |
| Narsingdee | Salt ... ... | ..... | 25,000 | ..... | ..... |
| | Tobacco ... ... | ..... | 3,000 | ..... | ..... |
| | Pulse and grain ... ... | ..... | 82,000 | ..... | 60,000 |
| | Sugar ... ... | ..... | 11,500 | ..... | ..... |
| | Kerosine-oil ... ... | ..... | 13,000 | ..... | ..... |
| | Rice ... ... | ..... | 10,000 | ..... | ..... |
| | Mustard ... ... | ..... | 24,000 | ..... | 18,000 |
| | Piece-goods ... ... | ..... | 4,000 | ..... | ..... |
| Lakpur ... | Salt ... ... | ..... | 1,898 | ..... | ..... |
| | Pulse and grain ... ... | ..... | 11,250 | ..... | ..... |
| | Kerosine-oil ... ... | ..... | 6,000 | ..... | ..... |
| | Brass utensils ... ... | ..... | 2,500 | ..... | ..... |
| | Jute ... ... ... | ..... | 2,07,000 | ..... | ..... |
| | Piece-goods ... ... | ..... | 7,000 | ..... | ..... |
| Manikgunge or Lalitgunge. | Piece-goods ... ... | ..... | 1,10,000 | | |
| | Twist and yarn ... ... | ..... | 4,654 | | |
| Jaigir ... | Unrefined sugar ... ... | ..... | 40,000 | ..... | ..... |
| | Salt ... ... | ..... | 48,750 | ..... | ..... |
| | Oil ... ... | ..... | 93,600 | ..... | ..... |
| | Tobacco ... ... | ..... | 7,75,000 | ..... | ..... |
| | Chilly ... ... | ..... | 46,000 | ..... | ..... |
| | Sugar ... ... | ..... | 6,60,000 | ..... | ..... |
| | Betel-nut ... ... | ..... | 30,550 | ..... | ..... |
| | Cocoanuts ... ... | ..... | 7,500 | ..... | ..... |
| Saturia ... | Salt ... ... | ..... | 23,075 | ..... | ..... |
| | Jute ... ... | ..... | ..... | ..... | 2,20,000 |
| | Timber ... ... | ..... | 15,000 | ..... | ..... |
| | Bamboo ... ... | ..... | 3,000 | ..... | ..... |
| | Fuel ... ... | ..... | 300 | ..... | ..... |
| Byra ... | Jute ... ... | ..... | ..... | ..... | 5,00,000 |
| Teota ... | Salt ... ... | ..... | 16,250 | ..... | ..... |
| | Piece-goods ... ... | ..... | 33,000 | ..... | ..... |
| | Twist and yarn ... ... | ..... | 17,000 | ..... | ..... |
| Jaffergunge | Salt ... ... | ..... | 18,414 | ..... | ..... |
| | Jute ... ... | ..... | ..... | ..... | 44,000 |
| Kanchanpur | Jute ... ... | ..... | ..... | ..... | 80,000 |
| | Cotton ... ... | ..... | 4,50,000 | ..... | ..... |
| Gheor ... | Jute ... ... | ..... | ..... | ..... | 10,40,000 |
| | Piece-goods ... ... | ..... | 75,000 | ..... | ..... |

| Names of marts. | Names of articles. | Import. | | Export. | |
|---|---|---|---|---|---|
| | | Quantity. | Money value. | Quantity. | Money value. |
| | | Mds. | Rs. | Mds. | Rs. |
| Aricha ... | Piece-goods ... ... | ..... | 30,000 | ..... | ..... |
| | Twist and yarn ... | ..... | 5,000 | ..... | ..... |
| Garpara .. | Jute ... ... | ..... | 1,20,000 | ..... | ..... |
| Mirkadim ... | Unrefined sugar ... ... | ..... | 25,000 | ..... | ..... |
| | Salt ... ... | 2,000 | 25,000 | ..... | ..... |
| | Tobacco ... ... | ..... | 35,000 | ..... | ..... |
| | Turmeric ... ... | 1,000 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | ..... | 95,000 | ..... | ..... |
| | Betel-nut ... ... | 10,000 | 10,000 | ..... | ..... |
| | Paddy ... ... | 10,00,000 | ..... | ..... | ..... |
| | Rice ... ... | ..... | 75,000<br>93,000 | ..... | ..... |
| | Betel ... ... | ..... | 20,000<br>25,000 | ..... | ..... |
| | Cloths ... ... | ..... | 1,00,000 | ..... | ..... |
| | Brass utensils ... ... | ..... | 2,100 | ..... | ..... |
| | Piece-goods ... ... | ..... | 1,30,000 | ..... | ..... |
| | Corrugated iron ... ... | ..... | 2,000<br>4,000 | ..... | ..... |
| | Mustard oil ... ... | 10,000 | 1,40,000 | ..... | ..... |
| | Hogla (mats) ... ... | ..... | 1,050<br>500 | ..... | ..... |
| | Pati (mats) ... ... | ..... | 4,800<br>10,000 | ..... | ..... |
| | Gur ... ... | 5,000 | ..... | ..... | ..... |
| | Ginger ... ... | 8,000 | ..... | ..... | ..... |
| | Plantain ... ... | ..... | 10,000 | ..... | ..... |
| | Oilcake ... ... | 10,000 | ..... | ..... | ..... |
| | Vegetables ... ... | ..... | 10,000 | ..... | ..... |
| | Lime ... ... | 1,00,000 | ..... | ..... | ..... |
| | Khalpa (mats) ... ... | ..... | 550 | ..... | ..... |
| | Kaita (mats) ... ... | ..... | 450 | ..... | ..... |
| Lahajang ... | Salt ... ... | 8,000 | 66,000 | ..... | ..... |
| | Unrefined sugar ... ... | 600 | 35,000 | ..... | ..... |
| | Tobacco ... ... | 500 | 26,000 | ..... | ..... |
| | Pulse and grains ... | ..... | ..... | ..... | ..... |
| | Sugar ... ... | 400 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | cases 9,000 | 32,000 | ..... | ..... |
| | Rice ... ... | 2,000 | 20,000 | ..... | ..... |
| | Cloths ... ... | ..... | 1,00,000 | ..... | ..... |
| | Brass utensils ... ... | ..... | 1,50,000 | ..... | ..... |
| | Jute ... ... | 16,000 | 23,000 | ..... | ..... |
| | Piece-goods ... ... | ... | 1,50,000 | ..... | ..... |
| | Corrugated iron ... ... | cwt. 3,000 | 27,000 | ..... | ..... |
| | Mustard oil ... ... | 1,500 | 70,000 | ..... | ..... |
| | Til oil ... ... | 1,500 | ..... | ..... | ..... |
| | Gur ... ... | 2,500 | ..... | ..... | ..... |
| | Pulses ... ... | 1,200 | ..... | ..... | ..... |
| | Fuel ... ... | ..... | 15,000 | ..... | ..... |
| | Cocoanut oil ... ... | 500 | ..... | ..... | ..... |
| Moonshirhat. | Unrefined sugar ... ... | ..... | 1,80,000 | ..... | ..... |
| | Salt ... ... | ..... | 14,000 | ..... | ..... |
| | Tobacco ... ... | ..... | 7,880 | ..... | ..... |
| | Sugar ... ... | ..... | 12,500 | ..... | ..... |
| | Paddy ... ... | ..... | 1,00,000 | ..... | ..... |
| | Rice ... ... | ..... | 80,000 | ..... | ..... |
| | Piece-goods ... ... | ..... | 7,880 | ..... | ..... |
| | Mustard oil ... ... | ..... | 40,000 | ..... | ..... |
| | Batasha ... ... | ..... | 18,000 | ..... | ..... |
| Taltala ... | Unrefined sugar ... ... | ..... | 1,25,000 | ..... | ..... |
| | Salt ... ... | ... | 17,500 | ..... | ..... |
| | Tobacco ... ... | ..... | 20,000 | ..... | ..... |
| | Sugar ... ... | ..... | 93,000 | ..... | ..... |
| | Rice ... ... | ..... | 28,000 | ..... | ..... |
| | Piece-goods ... ... | ..... | 60,000 | ..... | ..... |
| | Mustard oil ... ... | ..... | 85,000 | ..... | ..... |
| Shekharnagar. | Oil ... ... | 500 | ..... | ..... | ..... |
| | Salt ... ... | 700 | ..... | ..... | ..... |
| | Tobacco ... ... | 500 | ..... | ..... | ..... |
| | Sugar-cake ... ... | 200 | ..... | ..... | ..... |
| | Sugar ... ... | 250 | ..... | ..... | ..... |
| | Rice ... ... | 1,000 | ..... | ..... | ..... |
| | Paddy ... ... | 4,000 | ..... | ..... | ..... |

| Names of marts. | Names of articles. | Import. | | Export. | |
|---|---|---|---|---|---|
| | | Quantity. | Money value. | Quantity. | Money value. |
| | | Mds. | Rs. | Mds. | Rs. |
| Shekharnagar. | Cloths ... ... | ..... | 10,000 | ..... | ..... |
| | Turmeric ... ... | 200 | ..... | ..... | ..... |
| | Betel-nut ... ... | ..... | 700 | ..... | ..... |
| | Plantain ... ... | ..... | 300 | ..... | ..... |
| | Betel ... ... | ..... | 300 | ..... | ..... |
| | Cotton ... ... | 30,000 | ..... | ..... | ..... |
| | Rab ... ... | 500 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | 900 | ..... | ..... | ..... |
| | Gur ... ... | 400 | ..... | ..... | ..... |
| | Chira ... ... | 300 | ..... | ..... | ..... |
| Baruikhali... | Oil ... ... | 200 | ..... | ..... | ..... |
| | Salt ... ... | 300 | ..... | ..... | ..... |
| | Tobacco ... ... | 50 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | 40 | ..... | ..... | ..... |
| | Sugar ... ... | 30 | ..... | ..... | ..... |
| | Sugar-cake ... ... | 30 | ..... | ..... | ..... |
| | Cloths ... ... | ..... | 3,000 | ..... | ..... |
| | Turmeric ... ... | 10 | ..... | ..... | ..... |
| | Chilly ... ... | 15 | ..... | ..... | ..... |
| | Plantain ... ... | ..... | 250 | ..... | ..... |
| | Gur ... ... | 50 | ..... | ..... | ..... |
| | Rab ... ... | 20 | ..... | ..... | ..... |
| | Rice ... ... | 25 | ..... | ..... | ..... |
| | Chira ... ... | 12 | ..... | ..... | ..... |
| | Paddy ... ... | 900 | ..... | ..... | ..... |
| | Betel ... ... | ..... | 1,200 | ..... | ..... |
| Dhankunia... | Tobacco ... ... | 500 | ..... | ..... | ..... |
| | Sugar ... ... | 300 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | 900 | ..... | ..... | ..... |
| | Rab ... ... | 1,500 | ..... | ..... | ..... |
| | Salt ... ... | 20,000 | ..... | ..... | ..... |
| | Oil ... ... | 2,000 | ..... | ..... | ..... |
| | Jute ... ... | 5,000 | ..... | ..... | ..... |
| | Gur ... ... | 1,500 | ..... | ..... | ..... |
| | Rice ... ... | 400 | ..... | ..... | ..... |
| | Paddy ... ... | 15,000 | ..... | ..... | ..... |
| | Cocoanut-oil ... ... | 100 | ..... | ..... | ..... |
| | Cloths ... ... | ..... | 30,000 | ..... | ..... |
| Bandora ... | Sugar ... ... | 200 | ..... | ..... | ..... |
| | Oil ... ... | 200 | ..... | ..... | ..... |
| | Tobacco ... ... | 250 | ..... | ..... | ..... |
| | Gur ... ... | 300 | ..... | ..... | ..... |
| | Sugar-cake ... ... | 90 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | 90 | ..... | ..... | ..... |
| | Turmeric ... ... | 12 | ..... | ..... | ..... |
| | Chita ... ... | 200 | ..... | ..... | ..... |
| | Chira ... ... | 100 | ..... | ..... | ..... |
| | Betel ... ... | ..... | 1,000 | ..... | ..... |
| | Chilly ... ... | 90 | ..... | ..... | ..... |
| | Cloths ... ... | ..... | 100 | ..... | ..... |
| | Rice ... ... | 300 | ..... | ..... | ..... |
| | Onion ... ... | 90 | ..... | ..... | ..... |
| | Plantain ... ... | ..... | 100 | ..... | ..... |
| | Salt ... ... | 200 | ..... | ..... | ..... |
| | Paddy ... ... | 30,000 | ..... | ..... | ..... |
| Kalakopa ... | Oil ... ... | 7,200 | ..... | ..... | ..... |
| | Sugar ... ... | 3 600 | ..... | ..... | ..... |
| | Tobacco ... ... | 2,500 | ..... | ..... | ..... |
| | Sugar-cake ... ... | 725 | ..... | ..... | ..... |
| | Gur ... ... | 10,100 | ..... | ..... | ..... |
| | Turmeric ... ... | 4,800 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | 12,500 | ..... | ..... | ..... |
| | Chita ... ... | 2,500 | ..... | ..... | ..... |
| | Chira ... ... | 2,400 | ..... | ..... | ..... |
| | Sugar of superior quality ... | 1,200 | ..... | ..... | ..... |
| | Betel-nut ... ... | 150 | ..... | ..... | ..... |
| | Chilly ... ... | 2,000 | ..... | ..... | ..... |
| | Rice ... ... | 9,000 | ..... | ..... | ..... |
| | Bamati articles ... ... | ..... | 1,800 | ..... | ..... |
| | Lime ... ... | 150 | ..... | ..... | ..... |
| | Onion ... ... | 3,000 | ..... | ..... | ..... |
| | Ginger ... ... | 250 | ..... | ..... | ..... |
| | Kalai ... ... | 40 | ..... | ..... | ..... |
| | Khesari dâl ... ... | 70 | ..... | ..... | ..... |
| | Mug ... ... | 60 | ..... | ..... | ..... |
| | Chhola ... ... | 40 | ..... | ..... | ..... |

| Names of marts. | Names of articles. | Import. | | Export. | |
|---|---|---|---|---|---|
| | | Quantity. | Money value. | Quantity. | Money value. |
| | | Mds. | Rs. | Mds. | Rs. |
| Kalakopa ... | Sugarcane ... ... | ... | 600 | ..... | ..... |
| | Jollah cloth ... ... | ..... | 5,000 | ..... | ..... |
| | Vegetables ... ... | ..... | 700 | ..... | ..... |
| | Jute ... ... | 80 | ..... | ..... | ..... |
| | Gab ... ... | ..... | 250 | ..... | ..... |
| | Iron ... ... | ..... | 125 | ..... | ..... |
| | Churi ... ... | ..... | 200 | ..... | ..... |
| | Paper ... ... | ..... | 1,200 | ..... | ..... |
| | Sack ... ... | ..... | 150 | ..... | ..... |
| | Books ... ... | ..... | 400 | ..... | ..... |
| | Khata ... ... | ..... | 500 | ..... | ..... |
| | Shoes ... ... | ..... | 700 | ..... | ..... |
| | Chatai ... ... | ..... | 800 | ..... | ..... |
| | Cane ... ... | ..... | 25 | ..... | ..... |
| | Pati ... ... | ..... | 500 | ..... | ..... |
| | Fancy articles ... ... | ..... | 750 | ..... | ..... |
| | Paddy ... ... | 35,000 | ..... | ..... | ..... |
| | Betel ... ... | ..... | 750 | ..... | ..... |
| | Salt ... ... | 90,000 | ..... | ..... | ..... |
| | Timber ... ... | ..... | 6,000 | ..... | ..... |
| | Cloth ... ... | ..... | 2,00,000 | ..... | ..... |
| | Safflower ... ... | ..... | ..... | 6,000 | ..... |
| | Cotton ... ... | ..... | ..... | 40,000 | ..... |
| | Peas ... ... | ..... | ..... | 20,000 | .. |
| | Wheat ... ... | ..... | ..... | 5,000 | ..... |
| Karimgunge | Salt ... ... | 550 | ..... | ..... | ..... |
| | Oil ... ... | 150 | ..... | ..... | ..... |
| | Tobacco ... ... | 125 | ..... | ..... | ..... |
| | Rab ... ... | 120 | ..... | ..... | ..... |
| | Gur ... ... | 50 | ..... | ..... | ..... |
| | Sugar ... ... | 25 | ..... | ..... | ..... |
| | Chilly ... ... | 225 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | 175 | ..... | ..... | ..... |
| | Cloth ... ... | ..... | 1,200 | ..... | ..... |
| | Jollah cloth ... ... | ..... | 300 | ..... | ..... |
| | Iron ... ... | ..... | 75 | ..... | ..... |
| | Paddy ... ... | 7,200 | ..... | ..... | ..... |
| | Rice ... ... | 1,200 | ..... | ..... | ..... |
| | Betel ... ... | ..... | 400 | ..... | ..... |
| | Betel-nut ... ... | ..... | 250 | ..... | ..... |
| | Plantain ... ... | ..... | 150 | ..... | ..... |
| | Lataghas ... ... | ..... | 2,000 | ..... | ..... |
| | Chatais ... ... | ..... | 150 | ..... | ..... |
| Palongunge | Salt ... ... | 500 | ..... | ..... | ..... |
| | Oil ... ... | 125 | ..... | ..... | ..... |
| | Tobacco ... ... | 100 | ..... | ..... | ..... |
| | Gur ... ... | 50 | ..... | ..... | ..... |
| | Sugar ... ... | 20 | ..... | ..... | ..... |
| | Chilly ... ... | 200 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | 150 | ..... | ..... | ..... |
| | Cloth ... ... | ..... | 2,500 | ..... | ..... |
| | Jollah cloth ... ... | ..... | 3,000 | ..... | ..... |
| | Paddy ... ... | 2,500 | ..... | ..... | ..... |
| | Betel ... ... | ..... | 150 | ..... | ..... |
| | Betel-nut ... ... | ..... | 150 | ..... | ..... |
| | Plantain ... ... | ..... | 125 | ..... | ..... |
| | Rab ... ... | 125 | ..... | ..... | ..... |
| Kaliakur ... | Salt ... ... | 2,500 | ..... | ..... | ..... |
| | Gur ... ... | 2,000 | ..... | ..... | ..... |
| | Chini ... .. | 3,000 | ..... | ..... | ..... |
| | Tobacco ... ... | 1,000 | ..... | ..... | ..... |
| | Pulses ... ... | 3,000 | ..... | ..... | ..... |
| | Iron ... ... | 5,000 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | 1,000 | ..... | ..... | ..... |
| | Gajari wood ... ... | ..... | 50,000 | ..... | ..... |
| | Fuel ... ... | ..... | 2,000 | ..... | ..... |
| | Thatching-grass .. | ..... | 7,000 | ..... | ..... |
| | Mustard ... ... | ..... | 2,50,000 | ..... | ..... |
| | Bamboo ... ... | ..... | 2,500 | ..... | ..... |
| | Paddy ... ... | 2,000 | ..... | ..... | ..... |
| | Rice ... ... | 2,000 | ..... | ..... | ..... |
| | Til ... ... | ..... | 6,000 | ..... | ..... |
| Keranigunge | Oil ... ... | 500 | ..... | ..... | ..... |
| | Salt ... ... | 300 | ..... | ..... | ..... |
| | Gur ... ... | 800 | ..... | ..... | ..... |
| | Sugar ... ... | 300 | ..... | ..... | ..... |

| Names of marts. | Names of articles. | Import. | | Export. | |
|---|---|---|---|---|---|
| | | Quantity. | Money value. | Quantity. | Money value. |
| | | Mds. | Rs. | Mds. | Rs. |
| Keranigunge | Tobacco ... ... | 200 | ..... | ..... | ..... |
| | Rab ... ... | 200 | ..... | ..... | ..... |
| | Turmeric ... ... | 50 | ..... | ..... | ..... |
| | Chilly ... ... | 50 | ..... | ..... | ..... |
| | Chira ... ... | 100 | ..... | ..... | ..... |
| | Cloth ... ... | ... | 25,000 | ..... | ..... |
| | Iron ... ... | ..... | 4,000 | ..... | ..... |
| Kaligunge | European cloth ... ... | ..... | 4,000 | ..... | ..... |
| | Salt ... ... | 2,000 | ..... | ..... | ..... |
| | Gur ... ... | 500 | ..... | ..... | ..... |
| | Sugar ... ... | 200 | ..... | ..... | ..... |
| | Tobacco ... ... | 200 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | 1,000 | ..... | ..... | ..... |
| | Sugar-cake ... ... | 100 | ..... | ..... | ..... |
| | Jute ... ... | ..... | ..... | 2,50,000 | ..... |
| | Jack fruit ... ... | ..... | ..... | ..... | 400 |
| | Mustard ... ... | ..... | ..... | 1,000 | ..... |
| | Vegetables ... ... | ..... | ..... | ..... | 1,500 |
| Tangi ... | Fuel ... ... | ..... | ..... | ..... | 500 |
| Mirzapur... | Paddy ... ... | ..... | ..... | 5,000 | ..... |
| | Jute ... ... | ..... | ..... | 2,000 | ..... |
| | Mustard ... ... | ..... | ..... | 1,000 | ..... |
| | Til ... ... | ..... | ..... | 300 | ..... |
| | Gajari wood ... ... | ..... | ..... | ..... | 2,000 |
| Teota ... | Cloth ... ... | ..... | 1,00,000 | ..... | ..... |
| | Salt ... ... | 500 | ..... | ..... | ..... |
| | Iron ... ... | 15 | ..... | ..... | ..... |
| | Oil ... ... | 200 | ..... | ..... | ..... |
| | Tobacco ... ... | 200 | ..... | ..... | ..... |
| | Rice ... ... | 2,000 | ..... | ..... | ..... |
| | Paddy ... ... | 2,000 | ..... | ..... | ..... |
| | Matar ... ... | 200 | ..... | ..... | ..... |
| | Chira ... ... | 200 | ..... | ..... | ..... |
| | Chini ... ... | 100 | ..... | ..... | ..... |
| | Ghee ... ... | 20 | ..... | ..... | ..... |
| | Flour ... ... | 50 | ..... | ..... | ..... |
| | Thread ... ... | 800 bundles | ..... | ..... | ..... |
| | Timber ... ... | ..... | 600 | ..... | ..... |
| | Kerosine-oil ... ... | 90 | ..... | ..... | ..... |
| Dacca ... | Hides ... ... | ..... | ..... | 11,03,140 sheets | ..... |
| | Jute ... ... | ..... | ..... | 1,00,000 | ..... |
| | Gold and silver ornaments ... | ..... | ..... | ..... | 2,75,000 |
| | Shell work ... ... | ..... | ..... | ..... | 1,40,000 |
| | Jamdani ... ... | ..... | ..... | ..... | 3,10,000 |
| | Kashidar ... ... | ..... | ..... | ..... | 3,00,000 |
| | Muslin ... ... | ..... | ..... | ..... | 30,000 |
| | Safflower ... ... | ..... | ..... | ..... | 95,000 |
| | Brass and other metal manufactures. | ..... | ..... | ..... | 50,000 |
| | Twist and yarn ... ... | ..... | ..... | ..... | 6,00,000 |
| | Chilly ... ... | 16,000 | ..... | ..... | ..... |
| | Turmeric ... ... | 10 875 | ..... | ..... | ..... |
| | Tobacco ... ... | 9,000 | ..... | ..... | ..... |
| | Onion ... ... | 55,000 | ..... | ..... | ..... |
| | Potato ... ... | 18,000 | ..... | ..... | ..... |
| | Garlic ... ... | 2,500 | ..... | ..... | ..... |
| | Salt ... ... | 19,000 | ..... | ..... | ..... |
| | Oils ... ... | 27,000 | ..... | ..... | ..... |
| | Flour and wheat... ... | 26,000 | ..... | ..... | ..... |
| | Sugar ... ... | 41,250 | ..... | ..... | ..... |
| | Ghee ... ... | 6,125 | ..... | ..... | ..... |
| | Molasses ... ... | 10,500 | ..... | ..... | ..... |
| | Rab gur ... ... | 10,000 | ..... | ..... | ..... |
| | Lime ... ... | 75,000 | ..... | ..... | ..... |
| | Steam coal ... ... | 1,25,000 | ..... | ..... | ..... |
| | Rubble coal ... ... | 2,00,000 | ..... | ..... | ..... |
| | Teakwood ... ... | ..... | 35,000 | ..... | ..... |
| | Timber ... ... | ..... | 41,250 | ..... | ..... |
| | Spices and other baniati articles. | ..... | 3,50,000 | ..... | ..... |
| | Cotton ... ... | 4,200 | ..... | ..... | ..... |
| | Shimultula ... ... | 500 | ..... | ..... | ..... |
| | Fancy and manohari articles... | ..... | 7,00,000 | ..... | ..... |
| | Shoes ... ... | ..... | 2,30,000 | ..... | ..... |

| Names of marts. | Names of articles. | Import. | | Export. | |
|---|---|---|---|---|---|
| | | Quantity. | Money value. | Quantity. | Money value. |
| | | Mds. | Rs. | Mds. | Rs. |
| Dacca ... | Gold and silver ... ... | ..... | 4,60,000 | ..... | ..... |
| | Brass and other metal utensils | 4,000 | ..... | ..... | ..... |
| | Kerosine-oil ... ... | ..... | 31,500 | ..... | ..... |
| | Betel-nuts ... ... | 15,500 | ..... | ..... | ..... |
| | Rice ... ... | 10,00,000 | ..... | ..... | ..... |
| | Seeds ... ... | 13,000 | ..... | ..... | ..... |
| | Grain and pulse ... ... | 2,05,000 | ..... | ..... | ..... |
| | Cocoanuts ... ... | ..... | 8,000 | ..... | ..... |
| | Betel ... ... | ..... | 27,000 | ..... | ..... |
| | Grey jaconets ... ... | ..... | 5,25,000 | ..... | ..... |
| | Do. shirtings ... ... | ..... | 11,30,000 | ..... | ..... |
| | Do. madapallans ... | ..... | 2,50,000 | ..... | ..... |
| | Grey mulls ... ... | ..... | 22,000 | ..... | ..... |
| | Scarves and plain chudders ... | ..... | 6,50,000 | ..... | ..... |
| | White shirtings ... ... | ..... | 4,20,000 | ..... | ..... |
| | Cambrics ... ... | ..... | 1,000 | ..... | ..... |
| | Lappets leones ... ... | ..... | 80,000 | ..... | ..... |
| | White dhuties and saries ... | ..... | 1,50,000 | ..... | ..... |
| | Velvets ... ... | ..... | 1,50,000 | ..... | ..... |
| | Coloured garment dress ... | ..... | 1,60,000 | ..... | ..... |
| | Other things ... ... | ..... | 4,25,000 | ..... | ..... |
| | Grey dhuties and saries ... | ..... | 11,78,000 | ..... | ..... |
| | White jaconet ... ... | ..... | 4,78,000 | ..... | ..... |
| | White mulls ... ... | ..... | 1,50,000 | ..... | ..... |
| | Coloured, printed, or dyed cambric. | ..... | 95,000 | ..... | ..... |
| | Prints and chintz ... | ..... | 2,00,000 | ..... | ..... |
| | Grey T. cloth sheetings ... | ..... | 7,000 | ..... | ..... |
| | Grey jeans and drills ... | ..... | 2,55,600 | ..... | ..... |
| | Benaresi saries and shawls, &c. | ..... | 43,000 | ..... | ..... |
| | Twist, yarn, and muga (silk) | ..... | 10,50,000 | ..... | ..... |
| Naraingunge | Jute ... ... | ..... | 1,99,37,500<br>24,745 by sea | ..... | 78,27,620 unscrewed.<br>16,52,050 screwed. |
| | Tobacco ... ... | ..... | 2,00,000<br>5,766 by rail | ..... | 51,894 |
| | Betel-nut ... ... | ..... | 2,25,000<br>238 by rail | ..... | ..... |
| | Cotton (manufactured) ... | ..... | 4,12,500<br>41,79,357 by rail | ..... | 40,014 |
| | Raw cotton ... ... | ..... | 5,50,000<br>3,62,968 by sea | ..... | 1,22,176 |
| | Teak ... ... | ..... | 12,000<br>25,800 by sea | ..... | ..... |
| | Oil ... ... | ..... | 1,20,000<br>11,016 by rail | ..... | 2,164 |
| | Kerosine-oil ... ... | ..... | 26,00,000<br>4,800 by rail<br>49,078 by sea | ..... | 12,600 |
| | Ghee ... ... | ..... | 18,900 | ..... | 36,432 |
| | Sugar ... ... | ..... | 4,50,000<br>2,21,448 by rail | ..... | 17,056 |
| | Salt ... ... | ..... | 12,27,000<br>4,45,835 by sea<br>74,765 by rail | ..... | ..... |
| | Rice ... ... | ..... | 972 by rail<br>756 by sea | ..... | 16,632 |
| | Paddy ... ... | ..... | 608 by sea | ..... | 504 |
| | Hides and skins ... | ..... | 154 by sea<br>32,832 by rail | ..... | 25,09,596 |
| | Other timber ... ... | ..... | 1,710 by rail<br>2,660 by sea | ..... | ..... |
| | Coal and coke ... ... | ..... | 68 by rail | ..... | ..... |
| | Fibrous products ... ... | ..... | 11,340 by rail | ..... | 648 |
| | Grain and pulse ... ... | ..... | 5,670 by rail | ..... | 56,430 |
| | Metals ... ... | ..... | 2,89,602 by rail | ..... | 12,555 |
| | Do. manufactured ... | ..... | 2,54,880 by rail | ..... | ..... |
| | Provisions ... ... | ..... | 1,29,168 by rail | ..... | ..... |
| | Mustard ... ... | ..... | ..... | ..... | 47,147 |
| | Brass and tin, wrought ... | ..... | ..... | ..... | 23,166 |

R. D'R. & others—Reg. No. 4116J—250—11-1-90.